Volume XXII
Number 9
September, 1946

SOAP and SANITARY CHEMICALS

CONTENTS

Published Monthly By
MAC NAIR-DORLAND COMPANY
254 West 31st St., New York, N. Y.

Subscription rate, $3.00 per year. Foreign, including Canadian, $4.00. Copy closing dates—22nd of month preceding month of issue for reading matter and 10th of month preceding month of issue for display advertising. Reentered as second-class matter, Feb. 9, 1938, at Post Office, New York, under act of Mar. 3, 1879. Mail circulation July, 1946, 5110 copies. Total circulation 5300.

Ingenuity PAVED THE WAY!

Ingenuity paves the way in modern container-making too! **National,** through its ingenious application of materials and methods, explores all the possibilities of metal packaging to help solve your problem.

Under the capable supervision of craftsmen . . . on specially developed equipment . . . in plants strategically located, **National** produces a complete line of metal containers that will protect your product on the commercial highways of today.

Our sales representatives, technical and laboratory staffs are available to you without obligation. Sales offices and plants in principal cities.

NATIONAL CAN CORPORATION

Executive Offices: **110 EAST 42nd ST., NEW YORK 17, N. Y.**

AS THE EDITOR SEES IT

NO price relief for the soap industry in the immediate future! A soap shortage growing in severity, as the low profit items disappear completely from dealers' shelves! These are the completely negative results from the OPA industry advisory committee meeting in Chicago last month. In short, the OPA has washed its hands of the soap industry's pricing problems, refuses to treat the industry's case on an industry-wide basis, and advises individual manufacturers seeking price relief to go through the long drawn out procedure of individual price appeals, which take endless time, keep hundreds of OPA clerks busy with involved paper work, and normally end up with the soap maker being allowed to charge a price just high enough so that he can cover his cost of production.

Let not OPA kid itself! This is not going to get any soap produced. The soap makers we know are not dopes by any means, and are not interested in using up fat quotas just to get back their cost of production. They will simply continue to put their fat supplies into items that can be sold at a profit, and the low profit laundry soap products, which are currently in such short supply, will for all practical purposes simply cease to be manufactured.

Grounds for the OPA's refusal to treat the problem of soap pricing on an industry-wide basis are, to say the least, unique. We had a feeling that the OPA would think up a good one, but they have really surpassed themselves this time. Now it seems that the soap industry is not an "industry," at least according to the OPA definition. There are too few companies that are of the "straight line" variety, making soap as their major product. Too many of them, the OPA reasons, have other sources of income from the sale of shortening, meat products, cosmetics, insecticides, disinfectants, etc., and are not solely dependent on their soap sales to make a profit. On this ground, the OPA refuses to consider immediate industry-wide price relief. They prefer, we suppose, to stall a little longer until either increasing coconut oil arrivals solve the fat shortage, or the irate American housewife forces a more realistic handling of the problem.

THE recommendations of the Committee on Small Businesss of the House of Representatives regarding the soap industry which were published last month have raised a wide series of controversies within the industry. Strange as it may seem, each soaper appears to fit his thinking on fat quotas, quota periods, exemptions and the like on the side on which his bread is buttered. With the chips down, we have looked about for one of those generous souls "with the interests of the industry as a whole at heart" and find none. Those who want quotas reshuffled are those who believe they will gain by the process. Others who want them to remain as they are, are those who stand to lose in any reshuffling.

With insufficient fats to go around, except in the case of those who produce their own,—and until oils and fats are decontrolled, this situation is unlikely to change,—any revision of quota bases can mean only one thing, take fat away from some in order to give it to others. Whether this would be fair or unfair depends wholly on the circumstances of each individual case. It is not a situation which can be judged fairly en masse. Injustices undoubtedly exist under the present quota set-up. Other injustices would be substituted were it revamped. The whole thing is a complicated affair with many faults, but it cannot be set right merely by changing quota periods or with a sweeping wave of the hand.

In the hope that exports of fats and oils may be cut, and that new and larger supplies may be made available in the not too distant future, we feel that it may be better to sweat it out on the present basis than to attempt to complicate further an already complicated mess. We also feel

that the next move should be full decontrol of both fats and soaps for which any quota reshuffling would be but a make-shift substitute.

FOLLOWING publication of the recommendations of the Committee on Small Business of the House of Representatives for the soap industry, a letter was sent to the Secretary of Agriculture from the Association of American Soap & Glycerine Producers requesting that no action be taken on the recommendations until the Soap Industry Advisory Committee had been consulted. In view of the fact that the House Small Business Committee held hearings over five months ago and had at that time given all interested parties ample opportunity to speak their pieces, a request of this kind at this time would appear to be more than impertinent.

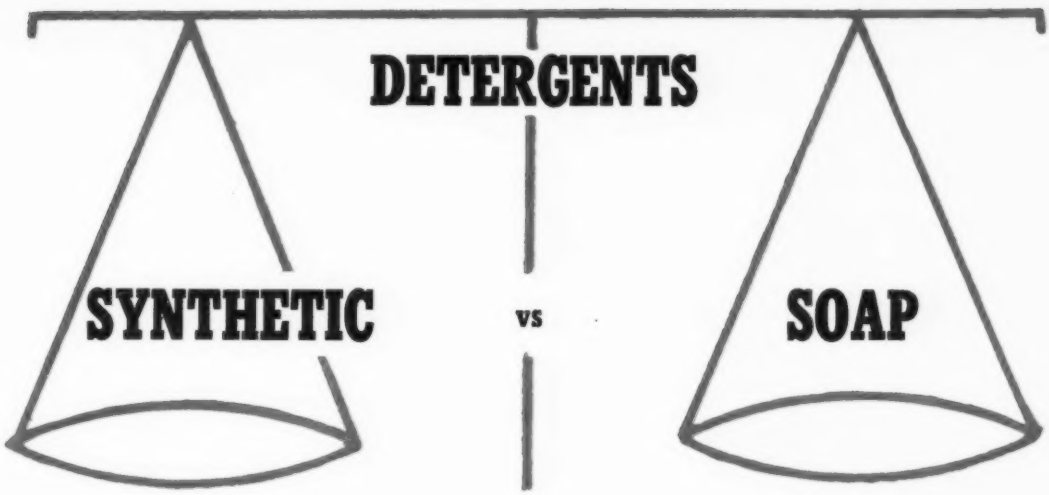
As far as we can see, the Association chose deliberately to boycott the hearings last April inasmuch as no representative attended. They unquestionably knew that the hearings were to be held. In failing to have a representative attend, we feel that the Association was derelict in its duty to its members and to the whole industry whose best interests it has always purported to represent and protect. Its request to the Secretary of Agriculture at this late date deserves little if any consideration. Furthermore, such a letter might be construed as conveying unfair and unwarranted implications regarding the Soap Industry Advisory Committee, not to mention deliberately involving the Advisory Committee in a direct controversy with a committee of Congress.

NYLON lines are out of date. No longer do housewives stand in line hours on end to buy a pair of hose. Instead, soap lines have become the vogue,—soap and other necessities that the new price law which Congress dumped in the lap of the OPA have once again placed in or near the famine class. Just recently, word spread around a neighborhood in Brooklyn that the local A&P had Rinso. Our informant without make-up or hair-do highballed for the nearest store and took her place in line. An hour or so later the perspiring clerk blandly announced that the supply had run out but that they hoped to have more in two or three days. The comment which ran up and down the line proved beyond a doubt that the vocabulary of the average Brooklyn housewife is far more extensive than has been generally believed.

This is just a sample of what we are about to see all over the country. The famine stage in supplies of laundry soap products is near at hand. Most laundry soapers have reached the point where they are flatly refusing to sell any soap at current ceiling prices. The ire of American housewives is on the rise. But it would seem that the OPA chooses to ignore both facts. They may receive a reminder at the polls a month or so hence. Government officials may waste millions just as long as it does not touch directly the person of Mrs. Snoogleberry,—but when she cannot buy soap to wash Uncle Henry's work pants, that is going too far!

TO those soapers who look forward eagerly to the day when fats and oils will be in sufficient supply to be decontrolled so that they may buy all they need,—and when soaps may likewise be decontrolled so that they can sell what they make at a profit,—the 60,000 tons of copra exported from the Philippines in July ordinarily should give heart. When they told us that the 48,000 ton figure for June was probably just a flash in the pan, a last big gesture by CEMCO before it went out of business, we would have been glad to have settled for 30,000 tons in July. And along came 60,000! We are beginning to suspect that somebody was kidding us. But we can take it. We hope they fool us good and plenty again for August and September!

But in spite of heavy copra shipments from the Philippines, there is another fly in the coconut oil ointment. Copra arrivals on the West Coast are piling up with storage space at a premium and are not being crushed. Price ceilings are again the answer. Just as soapers are refusing to make and sell soap at a loss, copra crushers will not produce coconut oil at a loss. Uncrushed copra cannot help the soap situation, nor can it aid in relieving the acute glycerine shortage. Score one again for the OPA!



DETERGENTS

SYNTHETIC vs SOAP

By
J. W. McCutcheon

A GOOD deal has been written in recent years on the effect synthetic detergents may have on the soap business and what fraction of the latter may permanently be lost. Stimulated by war economy where all fats and oils were at a premium and where the exigencies of war created unusual demands for detergents of special qualities, synthetics have developed so fast that there are some who think soaps may finally become obsolete, much as natural silk has been displaced by synthetic fibres. On the other hand there are others who refuse to consider any alternative but that soap will triumph over all competitors, and synthetics are but a temporary phenomenon in present world economics. As the basis for an opinion, thereon, it is necessary to review briefly the subject of detergency, the characteristics of soaps and synthetics and the classification of the latter.

To be a good detergent, a compound must be soluble to some extent in water; it must lower the surface tension of the water, allowing the latter to penetrate the capillaries of the fibre and to wet them; it must reduce the interfacial tension to a point where the solid dirt or oil particles are displaced by the solution and finally to emulsify such displaced dirt or oil and hold it in solution until it it washed free of the fabric. This is a chain of physical reactions. Not all chemicals frequently classed as detergents accomplish this series of reactions. Frequently a compound will be successful at lowering the surface and interfacial tensions but will fail to emulsify or fail to hold the emulsified dirt in suspension. Such compounds are better classed as wetting agents or penetrants. It therefore follows that while all detergents are wetting agents, not all wetting agents are detergents.

In the same way we may compare a foaming agent with a detergent. The former is dependent only on the stability of the liquid air interface. The latter has this plus other factors as well. Thus detergents in general lather well, but such a property alone is not a measure of washing power. The broad term "surface-active agent" includes wetting, penetrating, foaming and emulsifying agents as well as detergents. Soap however, is not always used for its detergent powers. Sometimes it serves merely as a wetting agent. Its other surface-active properties are not used. They may be compared to the extra two cylinders in a car,—the reserve power, useful when the going gets rough. To compare soap and other surface-active agents properly, therefore, it is necessary to do so on the basis of use. Thus soap used as a cleaning agent must be compared with synthetic detergents, not indiscriminately with all synthetic surface-active compounds.

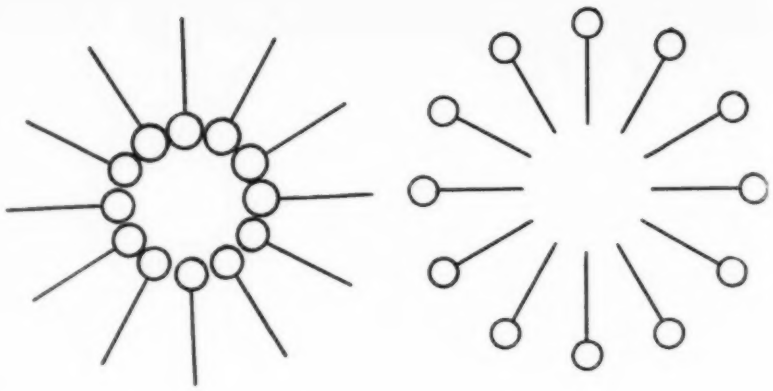
Establishing a comparative method of determining degree of detergency has been a most baffling problem. Attempts to correlate such physical data as surface tension, interfacial tension, viscosity, etc., have not been too successful to date. Each test indicates only one phase of the problem, and the relation one bears to the other is not well known. A practical solution is obtained by use of the launderometer, which is merely a method of standardized washing on a laboratory scale. The cloth is soiled, uniformly with lamp black in an oil or water soluble base, depending on the type of test desired. The color before and after washing is compared by means of a photometer. Very interesting data may be obtained by this means. For example a tallow soap at a concentration of 0.2% gives maximum detergency under normal conditions of time and temperature. If less is used, the surface tension falls off. If more is used, some soil is redeposited on the fabric. A similar redisposition occurs if the washing is unduly pro-

longed. This is said to be due to the absorption of the soap onto the fabric with subsequent reduced strength of detergent and redeposition of the soil.

Thus even under rigidly standardized conditions, the detergency of a soap or synthetic compound varies in non linear fashion with its concentration and with the time or operation. Similar variations can be shown to exist with changes of temperature or with change of pH. Other factors involved which yield step by step variations are the (1) type of surface from which the soil is being removed, (2) type of soil, (3) hardness of the water, etc. A detergent rating for soaps A & B for example might easily be reversed by varying the water hardness or the temperature. Thus detergency from launderometer tests must be interpreted specifically for the conditions l a i d down. Nevertheless, in the face of such difficulties, a fund of information on the detergent action of the soaps has been accumulated and correlated to a certain degree with purely physical tests.

A sodium soap molecule, may be represented somewhat as diagrammed below using the latest available physical data on interatomic distances.

When placed in water the sodium polar group or hydrophilic group as it is called of each molecule at the surface is oriented toward the water; the hydrocarbon, non-polar or hydrophobic group, stands out into space like the bristles on a brush. This is the orientation existing for the layer of molecules at the surface. An oil drop is then readily adsorbed by the hydrophobic end of the chain and tied through the soap to the water layer. This is the beginning of an emulsion. A drop of water in oil and oil in water would be represented as above showing the oriented surface molecules.

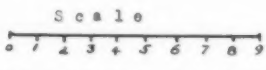


WATER IN OIL EMULSION

OIL IN WATER EMULSION

The length of chain has a profound influence on the ability of a soap to exert detergent properties. For example, it is well known that palm oil soaps do not stand up to as high a temperature on the laundry wheel as tallow soaps. This is because the former contains a higher percentage of palmitic and a smaller percentage of stearic acid than the latter. Lengthening the fatty acid chain decreases the solubility and increases lathering power up to a point. Thus it would appear that a soap may be too soluble to lather well. Below C_{10} for example the sodium salts of the fatty acids are not considered soaps at all.

SODIUM STEARATE *



On the other hand, above C_{18} the solubility falls off to such a degree that again detergency is impaired so that fats containing such acids make inferior soaps, e.g. hardened whale oil. Increasing the temperature increases the solubility, and for the C_{18} sodium stearate this means improving the detergency. A similar increase of temperature makes the C_{12} soap or sodium laurate slightly too soluble and greatly decreases detergency. Thus soaps from coconut and palm kernel oils containing an abundance of C_{12} and C_{14} acids work best in cold water and are called cold water soaps. Those from tallow containing the C_{16} and C_{18} acids in abundance are recommended for laundry work where temperatures of 160-180°F. prevail.

The physical chemistry of soap solutions indicates that at concentrations used for detergent work they exist as colloidal electrolytes and are probably agglomerated into groups of 5 to 20 molecules forming micelles. When true solution is effected through increased temperature or decreased chain length the soap loses its surface activity and detergent properties. Likewise, with the reverse conditions, the effective concentration is reduced below the minimum for good results.

With potash soaps, the same general relation between detergency and chain length holds, only shifted an octave higher on the scale. Solubility strength for maximum detergency, lathering power, etc. are all altered, but in a uniform and consistent way.

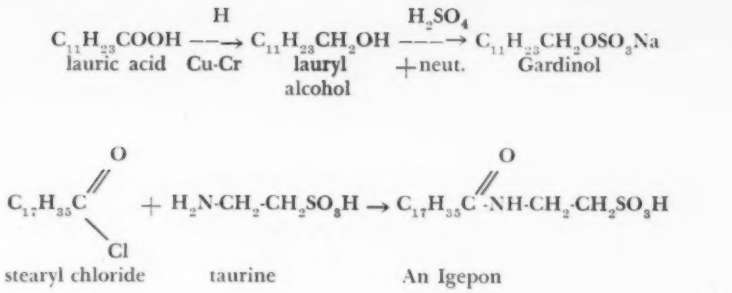
* In the above diagram, the large black circle symbolizes the sodium atom; the smaller black circles represent carbon; and the white circles represent hydrogen. The white circle with the diameter line represents oxygen. Some of the white circles appear to be missing. Actually they are present but not seen. In this spacial orientation of the molecule, some of the symbols for hydrogen and the carboxyl oxygen are obscured from view by other symbols.

The metal or organic ion also exerts its influence on the overall action of the soap. For example, potassium soap is easier on wood floors than sodium soap. The same is true with other types of soap ions available, such as ammonia, triethanolamine, lithium etc. The fatty acid salt of each ion forms a distinct type of soap, the properties of which change step-wise with the substitution of longer or shorter length fatty acid chains. The selection of the type of metal ion and chain length to meet the requirements of a specific detergent, or emulsifying problem is a job requiring extremely careful selection.

IT appears to the author that the soap industry broadly speaking has not yet availed itself of the many ramifications of modern fat splitting and distillation. Just as the railroad has been partly overhauled by the bus, so the soap industry has suffered in part by synthetics. These latter were developed with a view to overcoming the greatest drawbacks to the universal use of soap, namely its inability to be used in acid solutions and its precipitation from hard water by lime and magnesium.

If the polar group of the fatty acids could be modified so that it did not precipitate the fatty acid in an acid solution, and so that the calcium and magnesium salts were sufficiently soluble to prevent their precipitation from hard water, then an exceptionally useful detergent for the textile trade would be available. This problem was solved in Germany in the late twenties by the copper-chromium reduction of the fatty acids to the alcohol with subsequent sulfation and neutralization to provide the polar end group. Thus lauric acid from coconut oil is made to produce sodium lauryl sulphate.

This product, trade named "Gardinol," was introduced to America in the early thirties under the joint ownership of Procter & Gamble and DuPont de Nemours. The success of this compound in the textile trade was very great. Mixed 50/50 with sodium sulfate to enhance its detergent properties, it sold initially at about $1.00 per pound. Another early developed type of synthetic was the "Igepon" group



made by condensing taurine or its derivatives with the acid chloride.

The American interests of this compound were vested in Lever Bros. and General Dyestuff Corp. A compound belonging to the same family type as "Igepon" is controlled by Colgate Palmolive Peet under the name "Arctic Syntex." The large soap companies have been aware for many years of the possibilities of these newer type compounds and have taken steps to see that their interests in this field would be protected. The costs involved in building up a patent structure and in putting in the necessary specialized processing equipment have no doubt been a barrier to the smaller soap maker who has left this field generally to producers of specialized organic chemicals, who have been able to adapt their existing equipment more readily.

Although a bewildering array of synthetic surface-active agents have flooded the market within recent years, an analysis of their composition shows that they may be reduced to a dozen or so main types such as the sulfonated alcohols, alkyl naphthalene sulfonates, poly esters etc., and of these probably not more than four or five show real promise as detergents, the balance being wetting, foaming, emulsifying agents etc. Trade naming the compounds produced is a matter of individual taste. Some keep the same generic name for totally different classes of chemicals: "Penetrol —60" and "Penetrol —65," "Aerosol A Y" and "Aerosol A S." Others use the letters to denote state, such as solution, powder, etc.; others, more commonly perhaps, use letters or numbers to designate modifications of the same basic chemical, as "Span" —20, —40, —60, etc. Frequently chemicals of the same or almost the same chemical constitution will appear under different names due to several manufacturers collaborating on their production. For example "Duponol," "Orvus" and "Aurinol," representing different manufacturers, all belong to the same basic family of sulfated alcohols. A study of the field of synthetic detergents therefore involves classifying the various materials on the market according to their chemical constitution and then giving consideration to the modifications possible within each field. A few of the main classes with some of the principal trade names appearing under each are as follows:

(1) *The Sulfated Alcohols.* $R\text{-}CH_2\text{-}OSO_3Na$

This class, discussed above, is very stable to acids and alkalis and with the long chain fatty acids from C_{12} —C_{18} gives exceptionally good detergents. A few trade names belonging to this class are "Avitex," "Duponol," "Gardinol," "Aurinol," "Napro," "Napronol," "Modinal," "Orvus." Related as first cousins are similar petroleum derivatives, such as the sulfated hydrocarbons exemplified by "Wetanol," "Teepol," "Tergitol," or the sulfated aryl alcohols such as "Supersulphate F.S."

The length of the hydrocarbon chain in the synthetics varies the solubility, lathering and detergent properties, as it does in the normal soaps. Placing the sulfate group in the centre of the chain, thereby breaking the long uninterrupted hydrophobic group, decreases the detergent properties generally, although wetting and other properties may not be impaired. Detergency is impaired if the chain contains an

(*Turn to Page* 141)

CHLORINE DIOXIDE

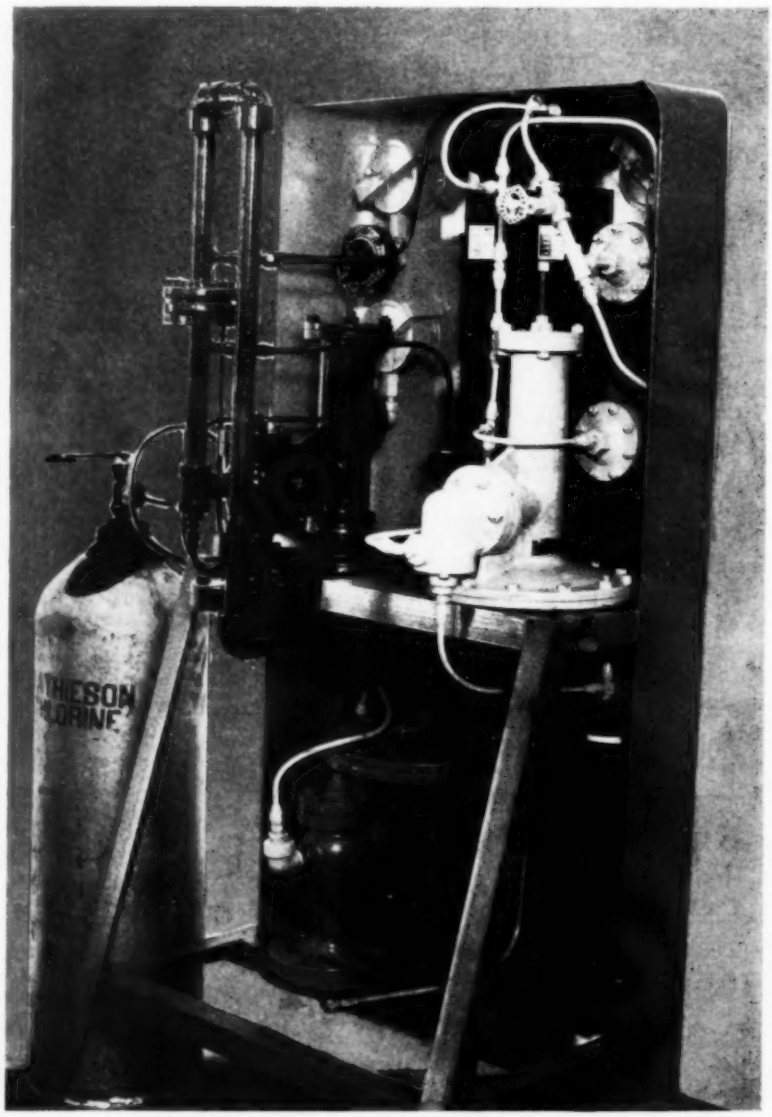
Oxidizing Gas, Generated From Sodium Chlorite at Points of

By E. R. Woodward and G. P. Vincent
The Mathieson Alkali Works (Inc.)

SODIUM chlorite bleaching of fat has become established in large scale commercial application during the past year (1). By this process, crude fats are upgraded to a quality which makes them suitable for use in the manufacture of high grade laundry flakes and toilet soaps. Refined fats also are considerably improved in color and odor. This chemical treatment gives a much higher yield than any of the adsorption methods and is thus increasing the available supply of high grade tallow which can be used for making high grade soaps.

Renderers and soap manufacturers, who have had to rely upon the adsorption process, have long been interested in the development of more efficient methods of bleaching fats. Interest in chemical bleaching has been slight, however, because of the belief that any chemical which would be effective as a bleach would also cause deterioration of the fat.

The critical shortage of high grade tallow renewed the search for some method which would give increased yields and more efficient upgrading of fats. When it was demonstrated that chlorite can bleach wood pulp and textiles without attacking the chemical structure of these materials (2, 3), interest was aroused in the possibilities of chlorite for bleaching fats and oils. It has since been demonstrated that chlorite bleaching of fat, when properly conducted, affects only color and odor. Iodine value and titer remain virtually unchanged, and the soap-making quality of the fat is in no way adversely affected.



Rear view of control panel, showing chlorine pressure reducing valve, chlorine flow control valve and valve regulating air flow.

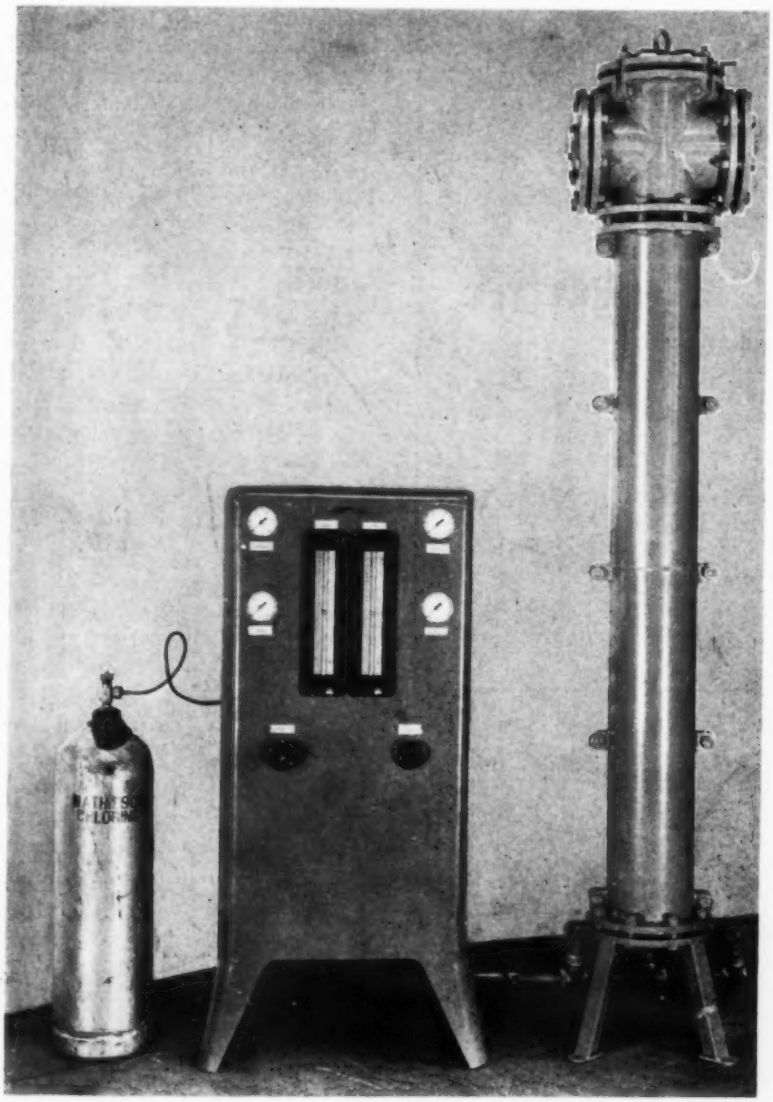
FOR FAT BLEACHING

Use, Improves Color and Odor with No Deterioration of Fat.

The use of sodium chlorite, $NaClO_2$, as a bleaching agent depends upon its reaction with various chemicals to produce chlorine dioxide, ClO_2. Chlorine dioxide is a gas with a very powerful oxidizing capacity. In terms of "available chlorine," it is 2½ times as strong as chlorine itself. Although chlorine dioxide has been known to chemists for a long time, it was not generally applied in commercial production because it is unstable and cannot be shipped or stored . It must be generated at the point of use as needed. When sodium chlorite became commercially available, a practical method of generating chlorine dioxide was developed. For fat bleaching, there are two reactions, either of which may be used to advantage. These reactions are represented by the following equations:

$$5\ NaClO_2 + 2H_2SO_4 \rightarrow 4\ ClO_2 + 2Na_2SO_4 + 2H_2O + NaCl$$

$$2NaClO_2 + Cl_2 \rightarrow 2ClO_2 + 2NaCl$$



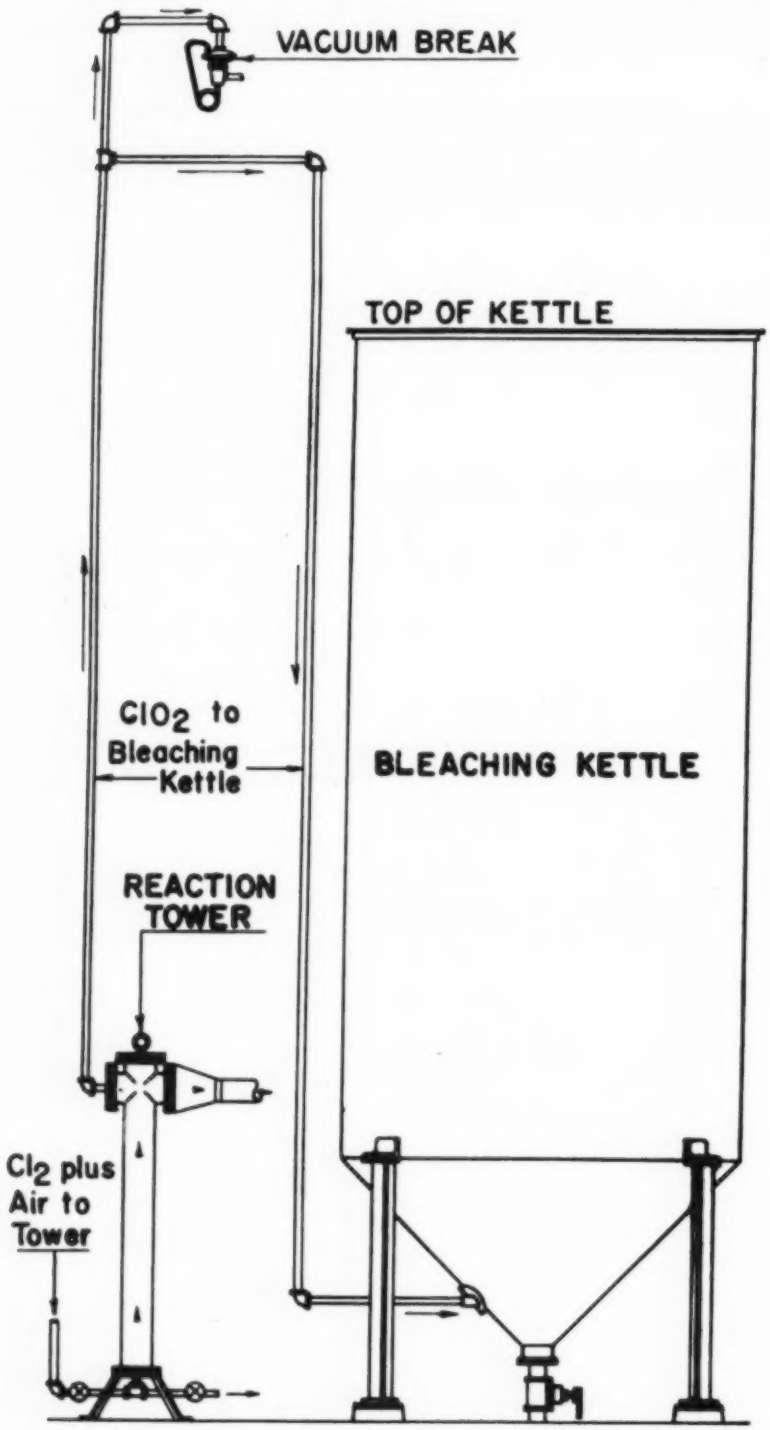
Apparatus for generating dry chlorine dioxide. Chlorine gas cylinder at left, control panel in center, sodium chlorite tower at right.

ClO_2 in the Fat Kettle

The first commercial method for bleaching fat with sodium chlorite involves the generation of chlorine dioxide in the kettle itself. The sodium chlorite is added to the kettle together with the activating agent, which may be either an acid or chlorine, as outlined above. The fat is agitated with steam, and the chlorine dioxide which is formed "in situ" accomplishes the bleaching.

Bleaching Brown Grease

Large scale bleaching of brown grease by the acid-chlorite method has been carried out as follows, to give a color change from 41 F.A.C. in the crude tallow to 13-15 F.A.C. in the finished product: The tallow is heated to 210° F. and treated with 1% by weight 66° Baumé sulfuric acid (1:1 with water), plus 0.1% sodium chlorite in a 10% aqueous solution. The mixture is agitated for one hour, then heated to 220° F. to remove moisture, treated



DETAIL SHOWING METHOD OF CONNECTING CHLORINE DIOXIDE REACTION TOWER TO BLEACH KETTLE

at this temperature for 15 minutes with acid-treated clay, and finally filtered. Both brown grease and house grease may be bleached by the chlorine-chlorite process.

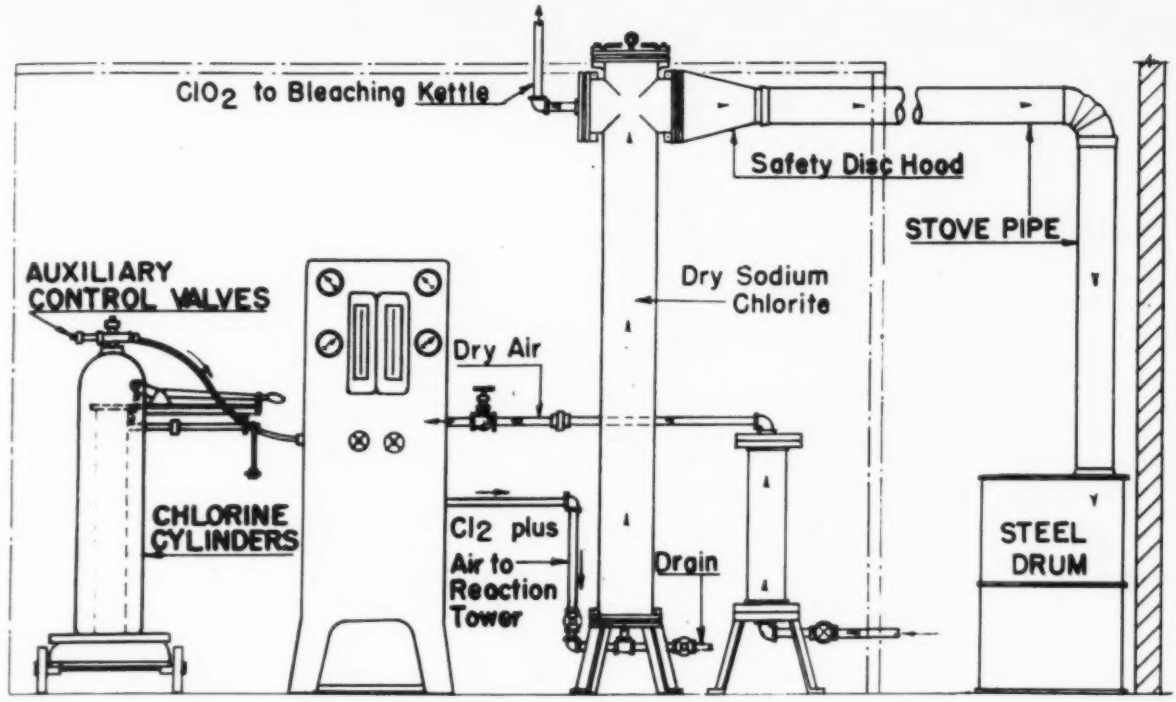
Bleaching Refined Tallow

One large renderer has accomplished large scale chlorite bleaching of refined tallow with both the acid and chlorine activation processes to produce a tallow of 3-5 F.A.C., as follows:

The tallow, as received from the rendering department, contains some free fatty acid and must be refined. It is heated with steam in an open kettle to a temperature of 210-212° F. The steam is shut off, the excess water is allowed to settle and is then drawn off from the bottom of the kettle. Enough caustic soda solution is added to neutralize completely the free fatty acids. The strength of the caustic solution will vary with the percentage of fatty acids being removed. For low fatty acid content, 8° Baumé is effective.

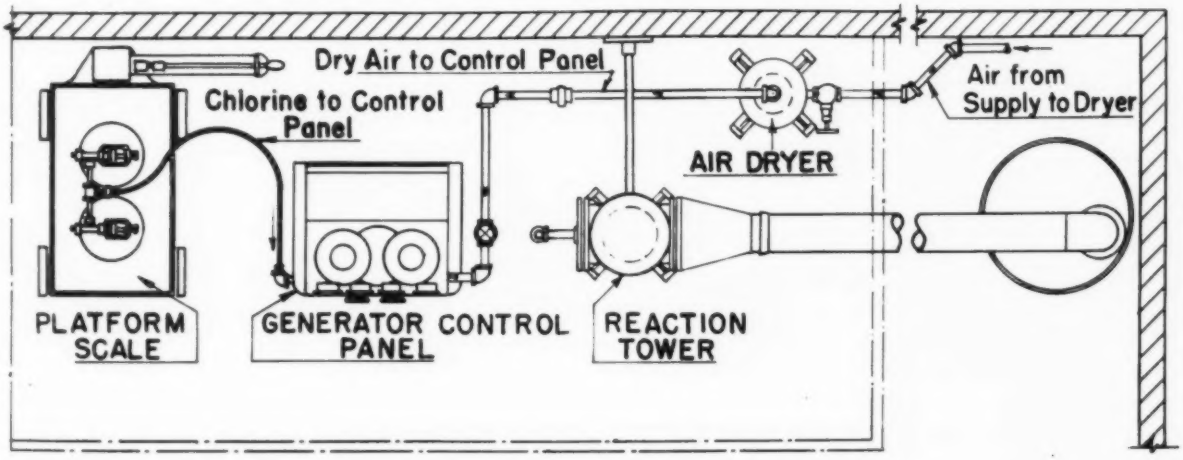
The soap stock settles to the bottom of the tank and is removed. The refined tallow is washed with hot water and allowed to settle over night. Next morning any remaining soap solution is drawn off from the bottom. This treatment improves the tallow, in this plant, from 19-21 F.A.C. to 13-15 F.A.C.

This refining step is followed by the acid-chlorite process, in which the refined tallow is heated with steam up to a temperature of 210-212° F. Agitation with steam is continued. One pound of technical sodium chlorite per 1,000 pounds of tallow is added. Then portions of a 20% aqueous solution of sulfuric acid are poured in at the top of the kettle until the water layer, which is equivalent to 10% of the weight of the tallow in the kettle, shows a pH of 4 or less. Bromphenol blue (available in paper strips or in solution) is used as a convenient end-point indicator. When sufficient sulfuric acid has been added to activate all of the sodium chlorite in the kettle, the color of the indicator changes from purple to yellow.



ELEVATION

CHLORINE DIOXIDE GENERATOR EQUIPMENT LAYOUT



PLAN

After the pH value of 4 has been reached, steam agitation is continued for half an hour. The water is again checked for pH, and a check on the bleaching power of the water layer is also made, starch-iodide paper being used for this purpose. In most cases the desired effect has been reached at this point.

The steam is then shut off, and small amounts of a weak caustic soda solution (8° Baumé) are added to bring the pH up to about 8. It is necessary to make the solution alkaline at this point in order to prevent reversion, especially as a result of the action of acid on the shell of the tank car during shipment. The addition of dilute caustic increases the water content of the kettle, and it is necessary to let the water settle to the bottom where it can be drawn off. The bleached tallow is dried and allowed to stand for a short time. Then any residual sludge may be readily re-

(*Turn to Page* 137)

ALUMINUM CLEANERS

By Milton A. Lesser

ALUMINUM is probably the most versatile of the lighter metals. Having further proved its adaptability during the war, there is every indication that aluminum and its alloys will find even greater and more diversified uses not only in industry, but in the home as well. Hand in hand with the extended applications will go an increased demand for suitable, safe and efficient cleaning materials.

As has been pointed out on many occasions, the importance of periodic and thorough cleaning of aluminum items cannot be over-emphasized. It is well recognized that the life of an aluminum vessel or piece of equipment can be greatly prolonged by thorough and regular cleaning of the surface with a suitable cleaner. However, the physical and chemical nature of aluminum requires that special consideration be given to the materials used for cleaning and polishing purposes.

Aluminum is a very soft metal readily scratched by many of the harder abrasives employed in household and similar scouring products. Even when alloyed with other metals to improve its durability, aluminum remains a relatively soft metal susceptible to abradant action. (1)

When formulating cleaners it is very necessary to remember that aluminum is rated as a chemically active metal. This is illustrated by the fact that when it is exposed to the atmosphere, aluminum forms a thin oxide film. Unlike other metals, this film does the metal no harm and, moreover, protects the metal beneath it from further oxidative changes. Since this natural film is very thin, a number of electrolytic processes have been developed to produce films of greater thickness. Since the aluminum oxide film thus formed is very hard, it serves to protect the metal against both corrosion and abrasion. This oxide coating may be tinted in various ways to yield the many colored aluminum products available on the market. (2, 3)

Even this tough film will not protect aluminum surfaces from the action of various chemicals, some of them commonly used in making household cleansers. As indicated by Akers and Mears, (4) aluminum and its alloys are rapidly attacked by caustic alkalies, by alkali carbonates, by the halogen acids, and by the halogens themselves. This attack is attributed to the solution or removal of the natural oxide films. The hard, tarnish-resistant electrolytically formed oxide coatings, while unaffected by many neutral chemical solutions, are readily attacked by uninhibited alkaline solutions. Hence in formulating aluminum cleaners, it is also necessary to take into consideration materials which will not attack aluminum oxide. Otherwise it is quite possible that not only will the aluminum be damaged, but that a very valuable finish may be ruined as well.

Because, during their processing, fabrication and finishing, aluminum products must be subjected to various cleaning procedures, industry has been able to assess the value of many materials employed for these purposes. (5, 6) Some of these substances may be harmful to the metal or the user when employed by unskilled people or without proper equipment. Hence, such materials are largely restricted to large-scale commercial methods. Many others, however, are quite safe and readily adaptable to the formulation of aluminum cleaners for household and general maintenance purposes.

Interesting and very indicative in this connection is the discussion of Akers and Mears (4) with regard to safe cleaners. In their opinion "safe" cleaners are those which can be used in any concentration upon bare or oxide-coated surfaces without injury to the surface. In this category belong such organic solvents as toluene, naptha and kerosene. Certain stabilized solvents of the chlorinated hydrocarbon type, and even aqueous solutions of ordinary soaps or alkaline detergents, like soda ash or trisodium phosphate, can often

Tests show frequent cleaning of household aluminum utensils with mild neutral soap will more than triple their life.

be placed in this safe class, provided they contain a sufficient amount of corrosion inhibitor. Aqueous or organic solvent solutions of many of the newer synthetic detergents or wetting agents or sulfonated oils can usually be rated as safe, especially if small amounts of a suitable inhibitor are added. Liquid waxes and light mineral oils are other materials which are generally considered safe.

"Harmful" cleaners, they feel, should be avoided unless they are of the kind that may be employed as "surface renewing" agents. This class of cleaners includes those materials which are intended to remove uniformly a small portion of the metal to expose a new and bright surface. Such cleaners may be either chemical solutions which etch or dissolve the surface layers, or abrasive pastes or powders which mechanically remove a part of the surface metal. In employing such materials it is essential to differentiate between those which are suitable for industrial purposes and those appropriate for making home-use products.

More detailed consideration of the various types or classes of materials used for cleaning aluminum should be indicative. Some thirty years ago, for example, soap was not included among materials for cleaning aluminum ware. This exclusion was probably justified on the grounds that many soaps then available contained appreciable amounts of free alkali, which is detrimental to the metal. (7) Obviously, this objection still holds with regard to soap powders and related products containing substantial quantities of sodium carbonate as an alkaline builder. (8)

Today, however, mild, neutral soap is considered one of the most effective aids for cleaning aluminum. Its efficacy has been demonstrated in a simple but illuminating experiment. (4) In this instance a corrosive water containing copper salts was boiled in two aluminum pans. One pan received no cleaning and became perforated after 324 hours. The other was cleaned with soap and steel wool after each four-hour boiling period and was still in good condition after 1,000 hours. In the light of such a demonstration, it is not surprising that a leading aluminum manufacturer's publication (9) should have the following statement. "One of the best methods of cleaning an aluminum surface is by the use of a mild soap and steel wool." Various soaps, some of them specially compounded for the purpose, are used in many cleaning steps during the fabrication and finishing of aluminum items. (7) Mild soaps are also satisfactory cleaners for oxide-coated aluminum products. (10) This familiar detergent is used quite extensively in aluminum cleaners for the household.

VARIOUS synthetic detergents are also suitable for use in connection with aluminum cleaners. Harris (6) rates the synthetic wetting agents among the best water-soluble neutral cleaners and states that they can be used equally well in alkaline or acid solutions. He reports that the use of some synthetic wetting agents and detergents with organic or inorganic acids results in improved cleaning and reduces corrosion. It is rather interesting that one foreign patent, (11) granted back in 1931, specified the inclusion of a sodium salt of sulfonated castor oil in a cleansing preparation particularly suited for aluminum.

Various organic solvents are used for cleaning aluminum, especially in industrial practices where a good degreasing action is desired without injury to the metal. Petroleum, hydrocarbon and coal tar solvents can be used on aluminum and its alloys, and in most cases they provide a satisfactorily clean surface. Chlorinated solvents can be used as long as no fine aluminum dust enters the solution and causes break down of the solvent to yield hydrochloric acid. (12)

A recent development has been the introduction of emulsifiable cleaners. According to Townsend, (12) such

cleaners are of two types. One class is generally composed of hydrocarbon-soluble emulsifiable material (e.g. triethanolamine oleate, sulfonated corn oil, etc.) added to a high flash-point naphtha or kerosene. The other type is produced by blending potassium oleate with kerosene and a blending agent such as butyl alcohol or cresylic acid. Up to 10 per cent of water can be added to either of these types to increase the emulsifying action. Since they are only slightly alkaline, emulsifiable cleaners are used in cleaning chemically active metals, including aluminum. Comparatively inexpensive, the solutions are non-explosive and cause less fire hazard than do petroleum solvents.

Alkaline compounds, which are so important in other cleansing preparations, are not recommended for aluminum. Solutions of sodium or potassium hydroxide rapidly attack aluminum and its alloys. Salts of sodium or potassium or any strong base and a weak acid, like sodium carbonate or trisodium phosphate, which hydrolyze in water to produce alkaline solutions are usually decidedly corrosive to aluminum. However, attack of aluminum by alkaline salt solutions can be reduced or even prevented by the use of an inhibitor like sodium silicate. (9) Thomas, (10) after noting the corrosive effects of several proprietary dishwashing compounds on aluminum utensils, recommended the inclusion of a high proportion of sodium metasilicate in such products.

Others have made similar observations. (6, 13, 14) Noteworthy is the number of patented aluminum cleaners containing silicates as corrosion inhibitors or as cleansing aids. (15-18) Silicates themselves are important aluminum cleaners and sodium silicate has been recommended (19) for this purpose because it shows less tendency to attack the metal than other alkalies. An interesting, though not especially typical silicate-containing cleaner for aluminum, tin, and zinc, is given in one patent (20) as follows:

	Parts
Trisodium phosphate	63.0
Sodium perborate	10.0
Sodium silicate	25.0
Magnesium sulfate	2.0

IT is sometimes desirable that aluminum surfaces be treated to expose a fresh clean surface or etched to remove traces of foreign metals. Nitric acid or combinations of nitric acid and hydrofluoric acid are used for this purpose. Solutions of sulfuric acid and sodium fluoride have also been employed in surface-renewing, as have preparations containing phosphoric acid. (4) One patented procedure (21) combines phosphoric acid with an alkali metal fluoride to make compositions for cleaning aluminum surfaces. Of course, by their very nature, such preparations are limited to industrial application.

Organic acids may be used occasionally as aluminum cleaners. A patented water-soluble cleansing composition consists of tartaric acid or similar acid mixed with about one per cent of sodium fluoride. (22)

As is the case with other types of metal cleaners, abrasives play an important role in many products used on aluminum. Since it is a soft metal, special consideration must be given to the kind of grinding agent employed. Abrasives such as soft silica, tripoli and fine emery are standard materials in the commercial methods for polishing aluminum products. Mild abrasives, like diatomaceous earth or calcium carbonate, are suitable for household aluminum cleaners, but the harder, coarser abrasives found in many scouring powders and pastes are liable to scratch the metal. A number of polishes based on the abrasive action of silica have been tried. According to Tyler, (23) such scouring agents were unsatisfactory because silica is too hard for aluminum; scratching the surface and failing to give a polish.

Steel wool deserves more than passing mention. It is a most satisfactory cleaning and polishing agent for aluminum surfaces, especially when properly lubricated. In industry, steel wool lubricated with soapy water or a greaseless polishing compound is used to produce a very satisfactory satin finish on aluminum. The same principle is used in the household. Although ordinary mild soap acts very efficiently, special preparations are sometimes offered for use with pads of steel wool. Such a product has been described (1) as consisting of:

	Per cent
Sodium oleate soap	7.0
Stearic acid	0.2
Water	92.8

In this composition, the small quantity of fatty acid is said to leave a sheen on the metal that has been cleaned by the soap and scoured and polished by the steel wool.

WITH these data as a background, it is possible to go into a more detailed consideration of the formulation of aluminum cleaners suitable for household and maintenance purposes. For the sake of convenience, such products may be classed as powders, cakes or blocks, pastes, and liquid preparations.

Cleaners in powder form may consist of simple mixtures of abrasives, with or without various proportions of soap or other detergents. Waxes or powdered fatty materials may be included to provide a sheen or polished effect for the cleaned metal surface. More complex compositions may incorporate alkalies and other presumably helpful agents. An aluminum cleansing powder may consist solely of a single abrasive material. For example, a patented (24) cleaning composition for use on aluminum ware, consists solely of crushed limestone. The unique feature of this product is that the particles are proportioned according to their degree of sieve-fineness.

Very commonly, however, several abrasive materials are mixed to form a more rounded or more pleasing product, as in the following example: (25)

	Per cent
Magnesium oxide	30.0
Whiting	30.0
Red iron oxide	40.0

The same source provides another, slightly more complex powder for fine polishing purposes:

	Parts
Tartaric acid, powdered	5.0
Magnesium oxide	30.0
Calcium carbonate, precipitated	40.0
White kieselguhr, calcined	30.0

Soap is a useful inclusion in powdered aluminum cleaners because its detergent and wetting action aug-

ments the mechanical effect of the abrasive. One product, claimed to clean and polish without scratching when applied with a wet cloth, has been found (1) to consist of:

	Per cent
Dolomitic limestone	85.5
Soda soap	13.0
Sodium silicate	1.5

The use of a synthetic wetting agent is illustrated in the following simple formula for a non-alkaline scouring powder for aluminum:

	Per cent
Aerosol OT-C	1.0
Feldspar (200 mesh)	99.0

It is said that, when used on a damp cloth, this powder will wet surfaces instantly, will quickly remove dirt and tarnish, and is easily rinsed in water. The powder may also serve as a general household cleaner for enamel ware, porcelain, tile and such. ("Aerosol OT-C" is a product of American Cyanamid and Chemical Corp., New York.)

An aluminum polishing powder containing a sheen-imparting material may be made along the following lines: (25)

	Per cent
Stearic acid or paraffin wax (powdered)	10.0
Magnesium oxide	40.0
Calcium carbonate, precipi-	
Calcium carbonate, precipitated	30.0
Red iron oxide	20.0

Another aluminum cleaning powder, described in an older patent, (26) is quite different from the more modern, fairly simple compositions. Made with several alkalies, it consists of:

	Parts
Powdered pumice	25
Powdered calcined silica	25
Sodium sesqui carbonate	25
Trisodium phosphate	10
Powdered soap	10
Ammonium chloride	5

As with other types of metal and household cleaners, products for aluminum can be provided as cakes or blocks. Such items may be made by compressing mild abrasives with a suitable binder. Soaps and other useful adjuncts may be included. A direct approach to such a cake product is provided in the following formula:

	Parts
Diglycol stearate	10.0
Stearic acid	20.0
Tripoli	200.0

Mix hot very thoroughly and pass through a sieve. The resulting fatty powder may be compressed into blocks or cakes.

Aluminum cleaners in paste form are quite popular and convenient to use. In addition to the usual abrasive and detergent, with or without a sheen-imparting material, paste products may take advantage of the grease cutting and dissolving action of various solvents. Such a well rounded, tinted product, cited by Small, (1) can be made from:

	Per cent
Iron oxide pigment	1.0
Water	1.0
Ammonium stearate	5.0
Stearic acid	4.0
Petroleum naphtha	36.0
Tripoli	53.0

Considerably simpler, but also much more old-fashioned is an aluminum cleaner and polish that combines a solvent and abrasive effect. This paste is made from:

	Parts
Tallow	4.0
Turpentine	2.0
Emery flour	1.0

The turpentine is added to the melted tallow and the emery is stirred in. To be applied with a polishing brush or rag, this polish is said (27) to provide a clean, lustrous surface.

Another variation of paste type polishes is offered (25) in the following formula made with water as the liquid component:

	Parts
Fine chalk	60.0
Clay	20.0
Magnesium carbonate	10.0
Tartaric acid	10.0
Dextrin	1.0
Diglycol stearate	1.0
Water	15.0

From the patent literature (28) comes the following rather general purpose cleaner. Suitable for aluminum, this cream is also recommended for cleaning porcelain, enamel, silver and the like:

	Parts
Soft soap	5.0
Whiting	24.0
Water	12.0

As already indicated, liquid preparations are sometimes designed for use with steel wool or similar material. These may be simple solutions containing soap and other adjuncts or somewhat more elaborate products, such as the following (29) made with solvents and in which the soap is formed *in situ*:

Potassium hydroxide	40.0 Gm.
Water	900.0 cc
Red oil (com. oleic acid)	150.0 cc.
Alcohol	25.0 cc.
Ethylene dichloride	50.0 cc.

Add the potassium hydroxide to the water, warm to 75°C. and slowly stir in the red oil until completely dissolved. Allow to cool and incorporate the alcohol and ethylene dichloride. To use, dip a piece of fine steel wool or rough cloth into the liquid and rub on the aluminum, then wash the surface with hot water and dry.

Including a mild abrasive in a liquid preparation obviates the need for steel wool or the like. Unless a suspending agent is added, however, it is necessary to shake the mixture prior to use in order to redisperse the abrasive. This is the case in an aluminum cleaner and polish recommended by Belanger, (30) which consists of:

Trisodium phosphate	2 oz.
Finest tripoli	1 lb.
Water	6 pt.
Sodium silicate	½ pt.

The patent literature also provides its complement of liquid preparations for cleaning aluminum. One such solution, which is used hot, employs from 6 to 25 parts of an aluminum salt such as potassium, sodium or ammonium alum, 0.2 to 5 parts of a detergent, like sulfonated castor oil, and about 100 parts of water. (31) Another, more recent patent (32) calls for the use of an aqueous solution containing sodium salts of orthophosphoric acid and silicic acid in specified ratios.

With the extension of aluminum's utility, more specialized products have been developed to meet specific needs. For example, liquids or pastes have been devised for removing beer scale, milk scale and such from equipment made of aluminum or its alloys. (33) The extension of aluminum

(*Turn to Page* 169)

TRADE NEWS. . . .

Peterson Elected

The Utility Co., Inc., New York, manufacturers of "Gre-Solvent," announced on July 30th the election of David L. Peterson (grandson of the late David G. Holmes), as secretary and assistant treasurer. The other officers continuing in office are Marion Holmes, president, and David C. Stutts, executive vice-president.

Hovell Joins Adv. Cos.

Advanced Cosmetics, Inc., New York, private brand manufacturers, report that Victor E. Hovell recently joined the company as production manager in charge of operations at the Long Island City plant. During the war, Mr. Hovell was superintendent in charge of TNT production at Keystone Ordnance Works, operated for the Army by Fraser Brace Engineering Co., Meadville, Pa. Previously, he was plant supervisor for TNT production at Triton Chemical Co., and was at one time on the sales staff of Stanco Distributors.

New Leather Cleaner

"Leather Lather," a colorless leather cleaning liquid developed by Link Laboratories, Kansas City, contains no wax or petroleum derivative and therefore is said to leave no grease or oil on the surface of the object cleaned. It is claimed to remove stains and to restore original color. The active ingredient is a polymerization agent which combines with the dirt. The liquid will be distributed in small bottles and gallon jugs through chemical, drug, and hardware jobbers.

35 Years with Davies-Young

E. G. Eckerman, vice-president in charge of sales of Davies-Young Soap Co., Dayton, is celebrating his thirty-fifth anniversary with the company. Mr. Eckerman started with Davies-Young Co. in 1911 as a salesman with headquarters in Cleveland, covering all of Ohio and western New York state. He covered the laundry and dry cleaning plants as well as handling

E. G. ECKERMAN

sanitary supply soaps and beauty and barber supply soaps. At the end of 19 years, he was brought to the factory to take charge of sales.

Two More Ceilings Lifted

Suspension of price control over cleaning fluids based on sodium alkyl benzene sulfonate packaged for household use, and over beeswax compositions containing 60 per cent or more beeswax was announced effective August 22nd by the Office of Price Administration, Washington, D. C.

Barber Institute Meets

Soaps were conspicuously absent from displays at the Beauty and Barber Shop Institute's two-day meeting in Chicago last month. Nearly 100 other toilet preparations were, however, exhibited by about a score of manufacturers or distributors, with emphasis on toiletries for men. Within the past twelve years, the number of toilet preparations for men has increased from ten to over 400, according to a Chicago manufacturer's agent, Murray Werker.

Advances at Hershey

The soap and extraction division of the Hershey Estates, Hershey, Pa., announced the following changes in the organization were effected in mid-August: Cedric Blanchard, formerly superintendent of the soap plant, was advanced to operating manager. Harold Brewer, formerly superintendent of the extraction branch, was moved up to operating manager of that branch. John McCleaf was promoted to sales manager for the entire division. Harold Hershey recently resigned as sales manager of the soap branch to become assistant manager of the milk products division of the Hershey Chocolate Corporation. The soap and extraction division of Hershey Estates manufactures "Hershey's Cocoa Butter Toilet Soap," "Hershey's Cocoa Butter Rose Garden Soap," and "Hershey's Cocoa Butter Shaving Soap" in bowls. A new product was recently announced by T. R. Banks, division manager. It is a soil builder and conditioner for lawns and gardens.

Alrosene PD New Detergent

A new dry synthetic detergent introduced recently by Alrose Chemical Co., Cranston, R. I., is claimed to have good possibilities for household and textile use. The active ingredient is a modified alcohol sulfate. The product, known as, "Alrosene PD," contains 15 per cent of active ingredient and 85 per cent of inorganic salts. A 1 per cent solution has a surface tension of 30.5 dynes per cm. at 25°C. The product is a good detergent on both wool and cotton in neutral solution. A 1 per cent solution at 45°C. produces 6 volumes of foam on agitating, with good foam stability. This suggests applications in laundering, upholstery- and rug-cleaning, general household cleaning etc. The product is resistant to mild acids and to calcium hardness, and may be mixed with soap powder or other cleaners.

Inspiration for fine perfumes

Sylvenol

A Distinguished Specialty of the Precious Wood Type

Sylvenol is a stimulating contribution to the art of perfumery . . . a constant inspiration to the blender. An extremely powerful aromatic, its odor is definitely of the precious wood type, reminiscent of sandalwood, cedar, patchouli and vetiver. It is also suggestive of orris and high grade ionones. Sylvenol is capable of countless extremely interesting effects, especially in modern and oriental type perfumes.

Sylvenol is a Dow specialty. Like all Dow Aromatics, it is a quality material, held to exacting standards of uniformity and odor fidelity. Your inquiries are cordially invited.

DOW AROMATIC PRODUCTS: Coumarin, Cyclotone, Diphenyl Oxide, Diphenyl Methane, Gardanthrol, Indol, Methyl Anthranilate, Methyl Phenyl Carbinyl Acetate, Methyl Salicylate, Paletone, Phenyl Ethyl Acetate, Phenyl Ethyl Alcohol, Styrene P-100, Sylvenol, and others—

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis
Houston • San Francisco • Los Angeles • Seattle

Synthetic

AROMATIC

Chemicals

DOW

CHEMICALS
INDISPENSABLE TO INDUSTRY

No Soap Industry Price Relief—O.P.A. Rules

THE OPA soap and glycerine Industry Advisory Committee met at the Hotel Stevens, Chicago, August 16 to discuss ways and means of solving the problems of soap supply and pricing created by the temporary termination of OPA controls a few months back. The committee elected officers as follows: T. J. Wood, Procter & Gamble Co., chairman; E. A. Moss, Swift & Co., vice-chairman; Roscoe Edlund, Association of American Soap and Glycerine Producers, secretary.

The meeting was presided over by G. W. Strasser, price executive for the rubber, chemicals and drugs branch of OPA, who indicated that no immediate industry-wide relief could be granted to soap makers generally. In order for an industry to be eligible for industry-wide relief, he pointed out, a substantial share of the total output of the product in question must be in the hands of firms the major share of whose incomes comes from sales of that product alone. He reminded the committee members that in the case of the soap industry the bulk of production is in the hands of firms who make not only soap but also shortening, meat products, cosmetics, toilet preparations, etc. They are thus not classed by the OPA as an "industry" and so are not eligible for "industry standards treatment." Another avenue open to them, he indicated, would be to petition for price relief under Section 6 of the new OPA act. Under this approach it would be necessary for the advisory committee to collect and submit cost data. However, a delay will be necessary in starting any such approach as the OPA has not as yet issued instruction for procedure under amendment 6.

Industry representatives have pointed out that they cannot sell, at reimposed price ceilings, soaps made from high cost raw materials purchased during the period of temporary OPA ceiling suspensions. Substantial quantities of tallow were reported purchased in the neighborhood of 13c a pound during the month when OPA controls were allowed to lapse. This high-priced tallow soapers are unwilling to make up into soaps to sell at ceiling prices. Neither are they willing to use their fat stocks in the manufacture of low-profit items, which consequently are currently off the market. It was this impasse which it was hoped might be corrected by action initiated at the Chicago meeting, but apparently no industry-wide relief can be expected.

The OPA has pointed out, however, that the way is still open, as it has been since the original passage of the price control act, for individual appeals for price relief in hardship cases, under amendment 5 to MPR 391. Appeals for price relief must be accompanied by detailed figures including the following: sales of the particular soap on which price relief is needed in relation to overall sales, cost of the product including raw materials, labor, average freight, indirect factory cost and general sales and administrative expense. On the last two items the OPA takes either the current figure, or 1942 figures, whichever is lower.

The amount of the price adjustment which they may allow depends on the company's overall current earnings as compared with earnings in the base period, 1936-1939. If earnings are currently in excess of the base period rate, all the OPA will allow on the product is direct factory cost. If earnings are the same as the 36-39 average, total cost may be allowed, while if earnings are currently below the 36-39 rate, total cost plus a reasonable margin of profit is permitted. No price increase will be allowed, however, which will raise the manufacturers price above the levels at which competitors are selling comparable products.

Other members of the Soap and Glycerine Industry Advisory Committee, in addition to the officers listed above, are: Russell Young, Davies-Young Soap Co.; H. Dock, M. Werk Co.; William K. Veale, Lever Bros.; Gordon Fulton, Beach Soap Co.; E. B. Hurlburt, J. B. Williams Co.; N. S. Dahl, John T. Stanley Co.; O. M. Burke, Manhattan Soap Co.; E. H. Little, Colgate-Palmolive-Peet Co.; V. Levinson, J. Eavenson & Sons, Div. Wilson & Co.; C. G. Fox, Fels & Co.; D. M. Flick, Armour & Co.; Fred Larrabee, Iowa Soap Co.; and E. M. Finehout, Los Angeles Soap Co.

Veg. Oil & Tallow Ceilings

Ceiling prices on crude vegetable oils and inedible animal fats were re-established by OPA effective Aug. 23. The prices are at June 30 levels. Prices on processed products from these oils were increased to reflect removal of processors' subsidies. OPA also stated ceilings for byproduct feeds, etc., were to be established.

Copra, Oil Ceilings Up

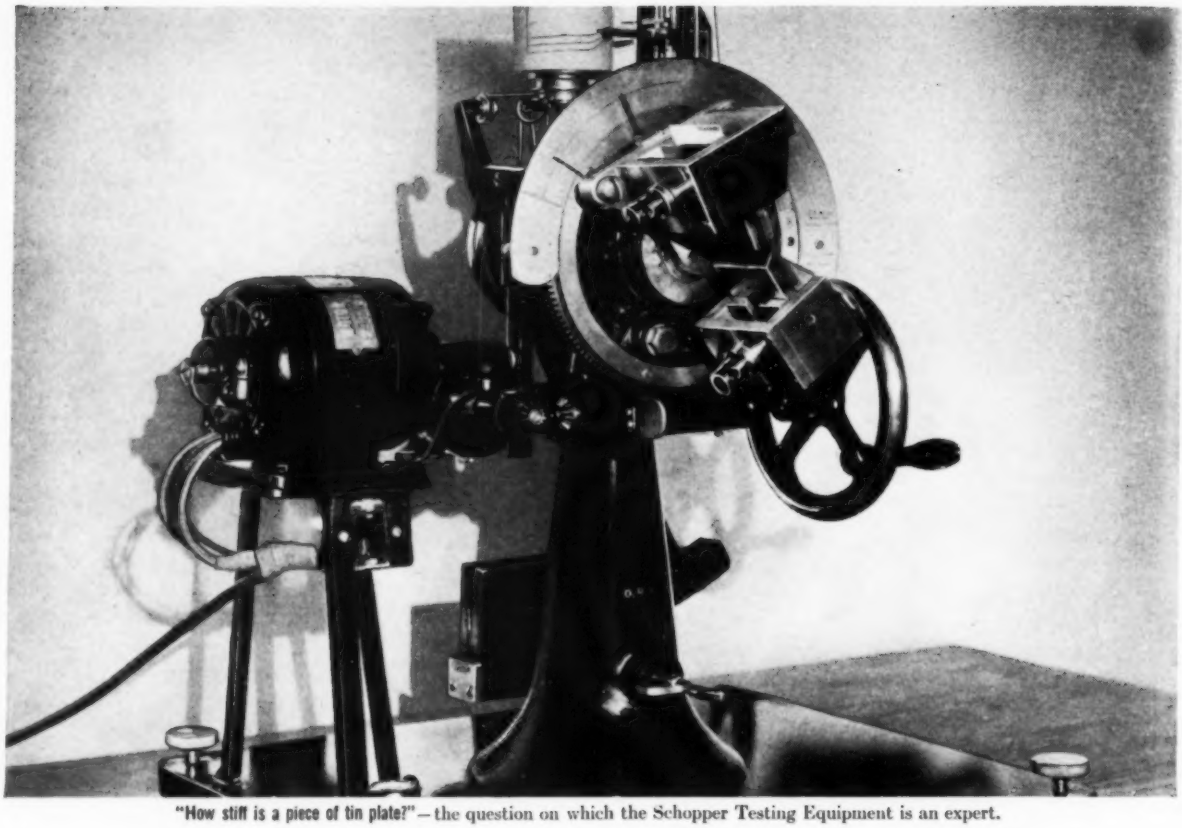
Increases in the maximum import prices of copra and crude coconut oil shipped from the Philippine Islands were announced by OPA August 26th. Copra increased from $109.50 to $110.25 per short ton c.i.f. Pacific coast ports, and from $114.75 to $115.50 per short ton, c.i.f. Gulf or Atlantic coast ports. Coconut oil increased from $0.08 to $.0806 a pound, c.i.f., Pacific ports, and from $0.0835 a pound, c.i.f., Atlantic ports to $0.0841 a pound.

More Coconut for Soapers

Soap makers have just been allocated an additional 50,000,000 lbs. of coconut oil by the U. S. Department of Agriculture.

BIMS Golf at Winged Foot

The BIMS of New York held their August golf tournament on Tuesday, August 13th at the Winged Foot Golf Club, Mamaroneck, New York. About 100 members and guests turned out. Among the prize winners were James McInnes, Jr., Commercial Solvents Corp.; Walter A. Conklin, Evans Chemetics, Inc.; C. W. Allen, Albert Verley Co.; Harry W. Heister, George Lueders & Co.; Ray F. Ougheltree, Bri-Test Products Corp.; and George P. Dunn, Smith & Nichols, Inc.



"How stiff is a piece of tin plate?"—the question on which the Schopper Testing Equipment is an expert.

FOUR "WISE GUYS" OF THE LABORATORY

The strange-looking machines on this page may not know all the answers about tin plate.

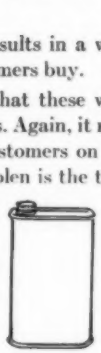
But, by and large, they are extra bright on most aspects of this subject. And they play an important part in the quality-control operations at Canco Central Research Laboratories at Maywood, Illinois.

Quality control is something in which American Can takes a deep interest. For we are obsessed with the idea that you can't be too sure about container materials.

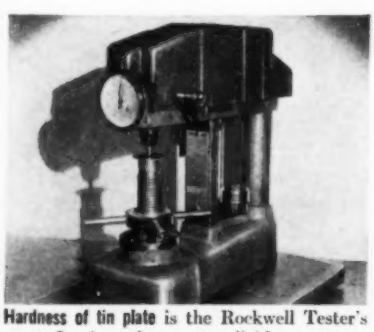
So, tin plate, adhesives, paper, solder, enamels, and sealing compounds—all components of the containers we make—get a going-over at Maywood, which results in a wide margin of safety for the products our customers buy.

It may be once in a business lifetime that these wide margins are exceeded and the container fails. Again, it may be never. But American Can serves its customers on the basis that *before—not after*—the horse is stolen is the time to put the padlock on the barn door.

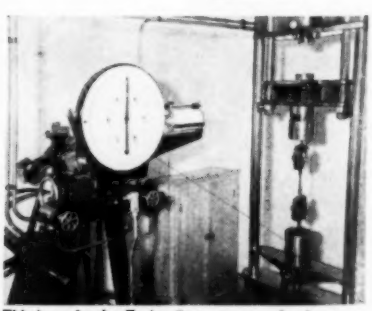
CANCO **AMERICAN CAN COMPANY**
New York · Chicago · San Francisco
No other container protects like the can



This is a Cup Tester. Its specialty is the question, "What are the drawing properties of tin plate?"



Hardness of tin plate is the Rockwell Tester's meat. It gives the exact, reliable answer.



This is an Amsler Tester. It tests samples by tension or by compression. It tells us how strong tin plate is.

Colgate Financial Report

The semi-yearly financial report recently issued by the Colgate-Palmolive-Peet Co., New York, showed net earnings of $6,311,156 or $3.10 a common share, or almost double the $3,182,547 or $1.49 a share earned in the corresponding six months of last year. Domestic sales for the current year's period were $72,839,504 compared with $70,831,725 last year. In addition, foreign subsidiaries included had sales of $19,263,527, making a world-wide total of $92,103,031, against $89,316,197 for the 1945 period. Domestic operating expenses were $18,771,860, compared with $14,659,140, while income taxes amounted to $3,656,982, a decrease of $2,143,018 from $5,800,000 a year ago.

Directors have authorized a program of expansion and modernization of buildings and equipment at an estimated cost of $25,000,000. This program is expected to be completed within three years.

Monsanto Sudless Soap

Monsanto Chemical Co., St. Louis, announced on August first a new type sudless synthetic detergent, "Sterox." Developed by the company's central research laboratories at Dayton, Ohio, primarily for use in automatic home laundry machines, the detergent is said to cleanse clothes as easily in hard as in soft water with the formation of no objectionable curds. "Sterox," now being made by Monsanto's phosphate division, is termed a non-ionic, or non-curd-forming detergent. Non-ionic means in this case that it will not combine with metallic substances found in tap water to form insoluble curds. The company also forecasts industrial uses of the product in textile, metal cleaning, and commercial laundry fields.

Bella to Visit U. S.

L. Bella, chairman and managing director of Kenrosa, Ltd., manufacturers of hair fixatives, other hair preparations, and men's toiletries, is due to arrive in New York August 25th for a visit until the end of September. He may be contacted in care of Metal Products Co., 100 Boylston St., Boston 16, Mass.

The new Shulton old spice bath set package is convenient both for the customer and for window or counter display.

New Shulton Bath Set

The Old Spice Bath Set, a new package by Shulton, Inc., New York, creators of Early American Old Spice Toiletries, was recently announced by the company as another useful combination of bathing supplies in an attractive box. Arranged in the box, which opens like a book, are two bath sticks, two cakes of toilet soap and one four-ounce bottle of toilet water. All of these items are regular size, the sticks the same as those in the bath sticks package. Enough salts for three baths are contained in each stick. The bath set package is parchment-colored with decorative motifs in green, blue, red and yellow. The package will be marketed at drug and department stores after October 15th.

Walters Resigns OPA Post

Rae E. Walters has resigned his position as administrator in charge of the Sixth Regional office of the Office of Price Administration at Chicago and returned to his Harlan, Ia., home where he will resume his business activities as proprietor of the Harlan Rendering Co. and other enterprises. Mr. Walters volunteered for government service in 1942 and, since January, 1944, has been stationed in Chicago. He has refused all compensation.

Cleaner and Car Wash

Developed and tested by the Ethyl Corporation of Detroit, Mich., a new multi-purpose household cleaner and car wash is available. It contains a synthetic detergent derived from petroleum, and is sold in concentrated liquid form under the name of "Ethyl Cleaner." It is recommended for various home uses including washing painted walls, windows, enameled finishes, and woodwork, and for cleaning all surfaces of an automobile.

U. S. Gets Dutch Copra

The Netherlands East Indies exportable surplus of copra has been made available to the United States through an agreement for its purchase signed by the Commodity Credit Corp., it was recently reported. The agreement will be in force for one year, beginning September 1.

The United States will advance $15,000,000 to the Dutch Government which it will use to buy trade goods and other supplies from the United States. The Dutch will repay with copra.

The Netherlands Indies Government estimates that a minimum of 300,000 long tons of copra can be made available to the world oil supply during the next 12 months.

Under the terms of the copra purchase agreement with the Netherlands East Indies the price of copra imported into the United States will be the same as that announced in connection with the Philippine copra agreement.

U. S. Gets All P. I. Copra

Under the terms of the copra purchase agreement signed August 7th in Manila, the Philippine Government has agreed to sell the entire exportable surplus of copra and coconut oil to the Commodity Credit Corporation or its designee for one year beginning July 1, 1946. The price of copra will be $103.50 per long ton, f.o.b. ocean carrier. Price of coconut oil will be 7⅛ cents per pound f.o.b. Philippine ports. This will allow importation of copra and coconut oil within the existing price ceilings set by OPA.

In addition the Philippine Government has agreed not to place any restrictions upon the production or export of copra to the U. S. All purchases for foreign claimants will be handled by the United States and the Philippine Government will issue export licenses only to the U. S. or its designee. Purchases for foreign claimants with International Emergency Food Council allocations will be made by the Fats and Oils Branch of the Production and Marketing Administration through normal commercial channels. All copra imported for use in the U. S. will be purchased by private importers, with control through import licenses.

Shipments of copra and coconut oil in terms of copra have risen steadily since January, reaching a high of about 60,000 tons in July, almost equaling prewar tonnages. The remarkable recovery of the Philippine copra industry is due particularly to the close co-operation between the two nations for the purpose of increasing the world's short supply of fats and oils. The United States is furnishing inter-island boats to carry copra to market, incentive goods such as textiles to encourage copra collections, and equipment to aid in harvesting and drying copra. Much of the groundwork resulting in increased shipments was due to the efforts of the Copra Export Management Corporation. Before the expiration of the agreement on July 1, 1947, the U. S. Dept. Agriculture expects shipments to be near the prewar levels of 1935-39.

Inedibles Retain Ceiling

Reports that the Office of Price Administration is contemplating increasing ceiling prices of inedible fats over the June 30 ceilings were denied in a statement made by the price agency on August 6th. These reports have been circulated throughout trade channels, OPA said, and have led sellers to withhold their products from the market. OPA declared that the revival of price controls on July 25th automatically put back controls on inedible fats at June 30 ceilings. The agency emphasized that no change in these ceilings is in prospect.

They further stated on August 13th that decontrol of soybean and cottonseed oils when sold for industrial purposes is not a precedent for decontrol of inedible tallow and grease. Amendment 45 which was issued to OPA Regulation S. O. 132, decontrolled until August 20th, soybean and cottonseed oils when sold to industrial users for inedible purposes. These same oils when sold for edible purposes were also decontrolled by the Price Control Extension Act until that same date. OPA officials state that this action in the case of soybean and cottonseed oils is not to be interpreted as a precedent for decontrol of inedible tallow and grease, which it is the announced intention of OPA to continue under control at June 30 ceiling prices. They pointed out that in the case of cottonseed and soybean oils exactly the same grades are sold for edible and inedible uses—they are the same product, and in OPA's opinion should be treated exactly alike.

The exact opposite is true of inedible tallow and grease. They are different products from edible tallow, and OPA regulations will treat the two products differently. Edible tallow was decontrolled, of course, until Aug. 20th by the price control act, but inedible tallow and grease remain under OPA ceilings.

Alympol Co. Now Nu-Brite

Alympol Soap and Chemical Co., Taunton, Mass., reports a change in the company name to Nu-Brite Chemical Co. The change was effective August 1st.

WFO 67 Still in Effect

In response to numerous inquiries, the Department of Agriculture, Washington, announced recently that there is no intention at present to suspend or revoke provisions of War Food Order 67 limiting the inventories of producers of inedible tallow and grease to one-twelfth of their production during the last six months of 1944. The Department pointed out that in view of the difficulty some users are experiencing at present in obtaining tallow and grease, the effect of the order in prohibiting the building up of excessive inventories by producers of tallow or grease is now particularly timely. In addition to limiting producers' inventories, War Food Order 67 limits dealers' inventories to one-twelfth of their deliveries during the last six months of 1944 and also limits inventories of manufacturer-users of inedible tallow or grease to one third of their consumption during the last six months of 1944.

Ideal Chem. Head Retires

Lloyd E. Grant, president of the Ideal Chemical Co., Scranton, retired August 15th. His place was taken by Dr. Curt Hoenigsberg former general manager of the company. In August, the company relocated in a new building at 630 Kressler Ct., Scranton, and closed down production until September 1st in order to carry out remodeling.

Evans Depilatories Sold

Sharp & Shearer, Reading, Pa., have announced the purchase of Evans depilatory cream and depilatory powder. The purchase included the complete manufacturing machinery for the two products. Production will be started immediately and the same outlets will be used for both the cream and the powder as in the past.

P. & G. Profits Higher

Procter and Gamble Co., Cincinnati, recently reported net profits of $21,263,669 or $3.29 a share, in the fiscal year ending June 30. The year before, profits were $19,512,314, or $2.95 a share.

WFO 42b Being Revised

THE Committee on Small Business of the U. S. House of Representatives issued a report August 1, recommending extensive revision of WFO 42b, in line with a number of suggestions made at open hearings which were held by the committee in Washington, April 3, 4 and 5 and April 15, 1946. The committee had been empowered to investigate charges that the provisions of WFO 42b were discriminatory, that the regulation had been unfairly administered to the detriment of small soap manufacturers, and that adequate supplies of fats and oils existed to permit removal of quota controls.

At the Washington hearings (reported in the April and May issue of *Soap and Sanitary Chemicals*), testimony was taken from a number of soap makers, as well as others concerned with fat and oil supplies. Some industry representatives seemed to favor some type of revision of quota base periods, but few recommended outright repeal. Hon. Estes Kefauver of Tennessee presided at the hearings.

Among the soap makers who testified at the hearings were E. O. Gillam, Gillam Soap Works, Fort Worth, Texas; A. L. Kamen, Kamen Soap Products, Inc., Barberton, Ohio; Carter Poland, Poland Soap Works, Anniston, Ala.; E. W. Wilson of Armour & Co., Chicago, and Herbert Kranich, of Kranich Soap Co., Brooklyn.

The recommendations of the committee are summarized below. They suggested that quota controls be retained until the supply of fats and oils more nearly equals demand, but recommend that soap makers be given a choice between alternative base periods, 1940-41 or 1944-45, whichever is most advantageous. They further recommend an additional ex-quota bonus to every soap maker not exceeding 60,000 lbs. of fats and oils per calendar quarter. Amendment of WFO 42b is also recommended to permit distribution of coconut oil to all soap makers in proportion to their quotas, regardless of whether or not they used coconut oil during the base period.

Word was received September 9 that the USDA was acting immediately to release coconut oil to the entire industry, as recommended by the house committee. An unofficial report was also noted that the balance of the recommendations would be given immediate attention.

Recommendations

The Committee on Small Business recommends that the Department of Agriculture should take immediate steps to preserve and strengthen the competitive position of small firms engaged in the manufacture of soap and soap products by the following actions pertaining to the controls provided under War Food Order 42b:

1. War Food Order 42b should be retained in effect, with the modifications suggested below, until such time as supplies of inedible fats and oils more nearly equal demand.

2. In the computation of base period usage of fats and oils firms should be given the alternative of using the period 1940-41 or 1944-45, whichever is the most advantageous.

3. The percentage quotas of inedible fats and oils for the manufacture of soap and soap products should be reduced to all manufacturers in an amount sufficient to produce a quantity of fats and oils as a bonus equal to the requirements of the following proposed amendments to War Food Order 42b:

(a) That section 1460.33 (b) (2) to be amended so as to read:

Any manufacturer who has used his quotas for all classes of soap for any calendar quarter may use an additional amount of fats and oils up to his base period usage in the aggregate for soap in such calendar quarter in addition to his quotas, but, in no event, shall this bonus exceed 60,000 pounds of fats and oils per calendar quarter * * *

4. All exempt uses should be included in current use computations and all other uses of inedible fats and oils should be controlled on a basis equal to that applicable to that used in the manufacture of soap and soap products.

5. The present policy being followed by the Department of Agriculture to assist hardship cases should be continued.

6. The Department of Agriculture should immediately amend War Food Order 42b so as to permit the distribution of coconut and other imported oils to all applicants who used fats and oils for soap and soap products manufacturing during the base period and this should be done in proportion to their use of all fats and oils during that period.

ANDREW P. FEDERLINE

As we go to press word reaches us that the connection of Andrew P. Federline with the Association of American Soap and Glycerine Producers has been terminated. Mr. Federline had been assistant manager of the association, as well as secretary of the Potash Soap Division which he helped to organize. He had been a member of the association staff since 1928, was widely known and esteemed in the industry, and had contributed largely to the excellent bulletin service supplied by the association to members in recent years.

Prior to joining the soap association, Mr. Federline was head of the legal, research and legislative work at the national headquarters of the American Automobile Association in Washington. He had also at one time served as a law clerk to the late Justice McReynolds of the U. S. Supreme Court.

Mr. Federline has not as yet announced his future plans, but it is believed that he will shortly open a law office in Washington. No announcement has been made by the association as to a possible successor to Mr. Federline.

E. J. Stoffregen Dies

Word has come from James Counts Soap Co., St. Louis, that Edward J. Stoffregen, co-partner of the concern for the past eighteen years died suddenly on August 24th at the age of sixty. Mr. Stoffregen was employed by Wm. Waltke Soap Co., for 27 years prior to joining Counts.

NEW TRADE MARKS

The following trade-marks were published in the August issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

JUNIOR DUDES—This in upper case, extra black, bold letters for detergent preparation. Filed Aug. 24, 1945 by Stephen Riley Co., Los Angeles. Claims use since Feb. 28, 1945.

REPCO—This in upper case, bold, stencil letters for soap substitute. Filed Dec. 18, 1945 by Refined Products Co., Lyndhurst, N. J. Claims use since Sept. 1, 1945.

REPCOLENE—This in upper case, extra bold, stencil letters for soap substitute. Filed Dec. 18, 1945 by Refined Products Co., Lyndhurst, N. J. Claims use since Sept. 1, 1945.

REPCO PAR—This in upper case, bold, stencil letters for soap substitute. Filed Dec. 18, 1945 by Refined Products Co., Lyndhurst, N. J. Claims use since Sept. 1, 1945.

"ALOHA"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"AMBUSH"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"BRAZEN"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"CANOE"—This in upper case, bold, black letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"EMIR"—This in upper case, extra bold letters for toilet soaps. Filed Jan. 19, 1945 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"LENIA"—This in upper case, extra bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"PRIORITE"—This in upper case, extra bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

BED BUG DOOM—This in upper and lower case, extra bold, black letters, one word above the other for insecticide. Filed Oct. 11, 1945 by Edgar A. Murray Co., Detroit. Claims use since 1898.

MOTH DOOM—This in upper and lower case, extra bold, black letters for insecticide. Filed Oct. 11, 1945 by Edgar A. Murray Co., Detroit. Claims use since 1898.

NEPTOX—This in upper case, extra bold letters for insecticide. Filed Dec. 22, 1945 by Northeastern Products, Inc., Boston. Claims use since Dec. 6, 1945.

BUGAMIST—This in upper case, outline letters within a lightly ruled box that is convex and concave at top and bottom to parallel the descent and ascent of the letters which grow smaller toward the middle of the word and grow larger at the extremities, for insecticide. Filed Feb. 21, 1946 by Sanitary and Pest Control Co., Cincinnati. Claims use since July 1, 1944.

TARGET—This in upper and lower case, bold, script letters across the face of a target-like background for self-polishing waxes for floors, furniture, automobiles, etc. Filed Aug. 21, 1945 by Chemical Manufacturing & Distributing Co., Easton, Pa. Claims use since Mar. 1, 1940.

MAC'S-IT—This in upper case, bold letters for wax for floors, furniture and automobiles. Filed Nov. 5, 1945 by Mac's Super Gloss Co., Los Angeles. Claims use since May, 1939.

PDQ—This in lower case, extra bold, black letters for soap and mechanics' cleanser. Filed Apr. 16, 1945 by Davis Soap Co., San Francisco. Claims use since Sept. 20, 1923.

FRENCH TEX—This in upper and lower case, reverse, script letters on a screened rectangular background for dry cleaning preparation. Filed Aug. 28, 1945 by La France Dry Cleaners, Youngstown, O. Claims use since Dec. 10, 1944.

ATOMO—This in upper case, extra bold, black letters for hand soap. Filed Dec. 12, 1945 by George E. Grigg, Jr., Burlingame, Calif. Claims use since Nov. 10, 1945.

BEAU BRUMMEL—This in upper case, open letters within a double ruled rectangular box with a doubled semicircular end for shoe polish. Filed Jan. 12, 1946 by Beau Brummel Polish Corp., Brooklyn. Claims use since Mar., 1920.

PHOTOGRAPH OF MRS. TIM MORRIS—For toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"PLATINE"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"SUPERSTITION"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc. Claims use since Dec. 31, 1945.

"SYMBOLE"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"ZODIAC"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc. Claims use since Dec. 31, 1945.

"ZODIACAL"—This in upper case, bold letters for toilet soap. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

DOVE—This in upper case, extra bold, over-size letters for washing powders. Filed Jan. 21, 1946 by Kemo

Textile Products Co., Providence, R. I. Claims use since Dec. 27, 1945.

JACK OF HEARTS—This in upper case, bold letters for facial soaps, bath soaps and shaving creams. Filed Jan. 22, 1946 by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

KING OF HEARTS—This in upper case, bold letters for facial soaps, bath soaps and shaving creams. Filed by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

WET-MOR—This in upper case, extra bold letters for automotive and the like shampoo material. Filed Jan. 24, 1946 by J. I. Holcomb Mfg. Co., Indianapolis, Ind. Claims use since Nov. 21, 1945.

PRESAGE—This in upper case, extra bold letters for toilet soaps. Filed Jan. 24, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Jan. 21, 1946.

SABOTAGE—This in upper case, bold letters for toilet soaps. Filed Jan. 24, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Jan. 21, 1946.

UTOPIE—This in upper case, bold letters for toilet soaps. Filed Jan. 24, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Jan. 21, 1946.

VENDETTA—This in upper case, extra bold, black letters for toilet soaps. Filed Jan. 24, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Jan. 21, 1946.

JACK OF CLUBS—This in upper case, bold letters or facial soaps, bath soaps and shaving creams. Filed Jan. 25, 1946 by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

JACK OF SPADES—This in upper case, bold letters for facial soaps, bath soaps and shaving creams. Filed Jan. 25, 1945 by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

JACK OF DIAMONDS—This in upper case, bold letters for facial soaps, bath soaps and shaving creams. Filed Jan. 26, 1946 by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

CARBOROSE—This in upper case, reverse letters on a rectangular, lined background for fungicidal preparation for treatment of athlete's foot. Filed Sept. 28, 1945 by Carborose Co., Brooklyn. Claims use since Oct. 18, 1941.

DINITROSOL—This in upper case, bold letters for insecticides. Filed Nov. 28, 1945 by Sherwin-Williams Co., Cleveland. Claims use since Aug. 13, 1945.

LLOYD'S SPIRIT OF YOUTH—This in upper case block and upper and lower case, bold, script letters for bubble bath preparation. Filed Jan. 12, 1946 by Lloyd-Sargent Co., New Rochelle, N. Y. Claims use since 1931.

(*Turn to Page* 145)

Soaps at Toiletries Show

THE fourth annual toilet goods show of the Chicago Associated Toiletries Salesmen was held in the Palmer House, Chicago, Aug. 19 to 28, with 175 exhibitors showing a complete line of soaps and toilet preparations. Many soap manufacturers were accepting orders subject to rationing in proportion to customer's previous volume of business.

Soap lines which had been reduced or suspended during the war are slowly getting back to normal, various manufacturers indicated. Yardley's, for example, has resumed distribution of its "Old English" lavender soap, but is rationing customers to make the supply go farther. John Hudson Moore, who during the war years offered only one de luxe bath cake, has re-introduced two old items, a regular bath soap and a hand soap. Allen B. Wrisley Co. has added long missing soaps to its "Gold Tassel" toilet sets for men and Alfred D. McKelvy Co. has restored its "Seaforth" concentrated liquid shaving soap after a year of non-production.

At the Ferd Mulhens, Inc., display, Morris B. Simpson, midwest sales manager, complained that lack of proper materials still prevents production of satisfactory transparent soap.

An inkling of conditions abroad was afforded by Edwin J. Hiller, secretary of Mauvel, Inc., New York, which for years has been manufacturing two lines of soap under license from the Societé Hygienique of Paris. Now this French concern, he said, is unable to make soap itself and is dependent on such supplies as Mauvel can send it from New York. Efforts to resume distribution here of an English soap, "OMY," which Mauvel had long handled, are still unavailing, he also stated. Mauvel formerly operated under the name of Maurice Levy Co., but in July reorganized from a partnership into a corporation and adopted the new name at that time.

Despite harassing restrictions, numerous soap manufacturers are proceding with plans for the future, including new lines, new packaging and new merchandising methods. Hewitt Soap Co., Dayton, O., displayed a new line of superfatted soaps under the brand name, "Lana," in sets of varied colors and scents. The company is again promoting its "Kensington" quality soap group in magnum and regular sizes and also pushing its familiar "Soap Treasures" in floral designs.

Roycemore Toiletries, Chicago, displayed a "Big League Cleanup" men's set, featuring a cake of soap designed to resemble a catcher's mitt, together with a shampoo and hairdressing, all in a box whose cover bears a picture of a big league ball game. The item was scheduled for release Sept. 25. Roycemore also displayed a 3-bar set of "Citation" soap and its recently introduced "Trellis" soapless cream shampoo.

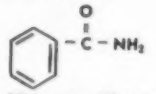
Lanchere, Inc., has redesigned its "Shamrock" series of hand soaps in three colors, bearing typical figures of Irish dancers, a harp and a clay pipe. These new items have just been placed on the market. Also shown were shaving sets, bath sets, bath softeners

(*Turn to Page* 169)

Hooker Research Presents Three New Chemicals with a Useful Future

Among the many new chemicals Hooker Research has developed during the past year, the three listed here have proved of such interest to research chemists and in such different areas that we feel warranted in bringing them to your attention again. Should a scanning of the condensed description cause a desire for more detailed information on any of them, we shall be glad to send you Technical Data Sheets giving more comprehensive physical and chemical characteristics. The coupon below makes it easier for you to request additional information.

BENZAMIDE

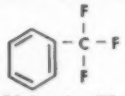


Molecular Weight	121.3
Melting point	125°C
Boiling point	290°C
Flash point	164°C
Fire point	185°C

Benzamide (Amide of Benzoic Acid) is a white, free-flowing monoclinic crystalline material. It is soluble in alcohol, acetone, hot water, and hot benzene; slightly soluble in cold water and other solvents.

Its physical and chemical properties suggest its possible application in the field of organic synthesis, including dyestuffs, pharmaceuticals and plastics. It is compatible with a limited number of resins including cellulose acetate and nitrocellulose with which it forms a firm transparent film.

BENZOTRIFLUORIDE

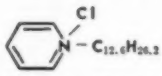


Molecular Weight	146.1
Freezing range	-28.5° to -29.5°C
Boiling range (ASTM, 98%)	2.5° including 101°C
Refractive index, n20/D	1.4145±.0005
Specific gravity, 15.5°/15.5°C	1.197±.001
Flash point	12°C

Benzotrifluoride is a water white liquid with an aromatic odor. It is completely miscible with most organic solvents. Thermal stability is excellent and under nitration or chlorination the CF_3 group is strongly meta directing.

A study of possible applications indicates that Benzotrifluoride may be of value in several industrial fields: dyestuffs, dielectrics, medicinals, insecticides, or other organic chemical synthesis.

LIQUID LAURYL PYRIDINIUM CHLORIDE



Molecular Weight (ave. active ingredient)	292.3
Specific Gravity, 15.5°/15.5°C	1.00
Freezing point	-1°C
Boiling point	100°C
pH	7.0

Liquid L. P. C. is a 30% water solution of Lauryl Pyridinium Chloride. It is a purified, non-staining, odorless, practically colorless product. It is miscible in any proportion with water and water miscible solvents as lower alcohols, acetone, and glycols. It is a cationic surface-active quaternary ammonium derivative possessing strong bactericidal and bacteriostatic properties.

Its germicidal, detergent, and penetrating characteristics suggest many possible applications in the field of detergent antiseptics, in the preparation of fungicides and disinfectants, and in textile finishing compounds. It also has possibilities in the preparation of cosmetic cotton, sterile bandages and other bactericidal or germicidal specialti-

3844

HOOKER CHEMICALS

HOOKER ELECTROCHEMICAL COMPANY

Buffalo Ave. and Union St., Niagara Falls, N. Y.

New York, N. Y. Wilmington, Calif. Tacoma, Wash.

Caustic Soda **Muriatic Acid** **Sodium Sulfide**
Paradichlorbenzene **Chlorine** **Sodium Sulfhydrate**

Please send me more information on
- ☐ Benzamide
- ☐ Benzotrifluoride
- ☐ Liquid Lauryl Pyridinium Chloride

Name ..... Title .....
Company .....
Street .....
City .....

BIDS AND AWARDS

W.F.A. Soap Awards

Special purchases of yellow laundry soap and synthetic laundry soap were announced in awards made by the Department of Agricture, Production and Marketing Administration, Washington, D. C., in recent openings for miscellaneous supplies for shipment under Lend-Lease, for U. S. Territorial needs, UNRRA, etc. Lever Brothers Co., Cambridge, Mass., received the awards on the following quantities of yellow laundry soap: 152,760 pounds at 7.065 cents a pound, 655200 pounds at 7.256 cents a pound; 381,780 pounds at 7.084 cents a pound and 762,000 pounds at 6.7 cents a pound. Colgate-Palmolive-Peet Co., Jersey City, N. J., received the award on 3,000,000 pounds of yellow laundry soap with a bid of 8.1 cents a pound. On the synthetic laundry soap, Phippe Products, Jamaica Plains, Mass., received the award with a bid of 8.78 cents a pound on 4,480,000 pounds.

D.C. Grit Soap Bids

In a recent opening for miscellaneous supplies by the District Government, Washington, D. C., the following bids were received on 3,500 pounds of grit cake soap: Day & Frick, Philadelphia, 4.48 cents a pound and Eagle Soap Co., Brooklyn, 4 cents.

Insecticide Bids

The following bids were received on 25 gallons of insecticide in a recent opening for miscellaneous supplies by the Petersburg, Va., office of the Department of Justice: Crystal Soap & Chemical Co., Philadelphia, $2.82; Elkay Products Co., New York, $1; McCormick & Co., Baltimore, $2.75 in five gallon containers and Sinclair Refining Co., New York, $1.50.

Treasury Wax Bids

Bri-Test Products Corp., Newark, N. J., entered a bid of $1.35 a gallon and R. M. Hollingshead Corp., Camden entered a bid of $1.24 on 2,750 gallons of floor wax in a recent opening for miscellaneous supplies by the Treasury Department, Procurement Division, Washington, D. C. In other Treasury Department openings, American Soap & Washoline Co., Cohoes, N. Y., entered a bid of 16.7 cents a pound on 9,600 pounds of powdered laundry soap. In the same opening a bid of 31.8 cents was received from Wm. Messer Corp., New York.

Insecticide Bids, Awards

The following bids and awards were announced in a recent opening for miscellaneous supplies by the La Tuna, Tex., office of the Department of Justice on, item 1, 100 pounds of wettable DDT spray powder; item 3, 50 pounds of activated sabadilla concentrate; item 4, 50 pounds of insecticide powder; item 5, 20 pounds of insecticide for dusting or spraying; item 7, 100 pounds of nicotine insecticide. On item 1, Agricultural Products Co., Las Cruces, N. Mex., 55 cents; American World Chemical Co., St. Louis, 62 cents; Barteldes Seed Co., Denver, 47.5 cents; Heid Brothers Corp., El Paso, Tex., 49 cents; Palm Seed & Plant Co., El Paso, 46 cents, accepted; Southwest Chemical Supply Co., El Paso, 73 cents; Vaughan Insecticide Co., El Paso, 55 cents and Vaughan's Seed Store, Chicago, 48 cents; on item 3, Heid Bros. Corp., El Paso, 19 cents; Vaughan Insecticide Co., El Paso, 58 cents, accepted; Palm Seed & Plant Co., El Paso, 19 cents; item 4, Heid Bros. Corp., El Paso, 19 cents; Palm Seed & Plant Co., El Paso, 24 cents, accepted; Vaughan's Seed Store, Chicago, 15 cents; item 5, Heid Bros. Corp., El Paso, 19 cents; Agricultural Products Co., Las Cruces, N. Mex., 14 cents; Palm Seed & Plant Co., El Paso, 10 cents, accepted; Vaughan Insecticide Co., El Paso, 28.5 cents; item 6, Palm Seed & Plant Co., El Paso, 12 cents, accepted; Vaughan Insecticide Co., El Paso, 30 cents; and item 7, on which no award was made, Vaughan Insecticide Co., El Paso, $1.50.

Panama Canal Soap Bids

Bids on unspecified quantities of various types of soap in a recent opening for miscellaneous supplies by the Panama Canal, Washington, D. C., were announced as follows: brown laundry soap, William Messer Corp., Camden, N. J., $8,007; Joseph E. Frankle Co., Cincinnati, $12,825; soap powder, Kamen Soap Products Co., Barberton, O., $3,885; Chemical Manufacturing and Distributing Co., Easton, Pa., $4,995; Soap chips, Standard Soap Co. of Camden, Camden, N. J., $6,500, accepted; and William Messer Corp., Camden, N. J., $8,588.

Treas. Metal Polish Bids

In a recent opening for miscellaneous supplies by the Treasury Department, Procurement Division, Washington, D. C., the following bids were received on 600 pounds of metal polish: A. L. Cahn & Sons, New York, 35 cents per pound; R. M. Hollingshead Corp., Camden, N. J., 14 cents; International Metal Polish Co., Indianapolis, Ind., 12 cents; Oils Specialties & Smelting Co., Brooklyn, 16.5 cents and Solarine Co., Baltimore, 12.5 cents, quoting on 17 cases of 36's, 612 pounds.

Independent Soapers Meet

A meeting of the Independent Soap Manufacturers of America was held Sept. 13th at the Hotel Stevens in Chicago. E. O. Gillam, chairman of the group, recently appeared before the Dept. of Agriculture in an attempt to get action on the House Small Business Committee's recommendations regarding revision of WFO 42b. At the Chicago meeting, Mr. Gillam was to report on what progress has been made in getting the USDA to act on these recommendations.

Wyandotte invests

Twenty-five million dollars . . . in an expansion program designed to help meet ever-increasing demands for industrial chemicals.

It is an investment founded upon faith—faith in the American system of free enterprise and in the continued greatness of this nation.

This program, already begun, is scheduled to be completed within eighteen months. It will greatly increase Wyandotte's capacity to produce calcium carbonate, chlorine and soda ash. Improvements in the method of processing caustic soda will also increase production of this vital material.

Included in the plans are new plants for the manufacture of glycol and synthetic detergents. The erection of the glycol and synthetic detergent plants will mark a major move by Wyandotte into the field of organic chemicals.

In addition to the huge construction project, Wyandotte is enlarging its sales force, its research, technical and engineering staffs—the better to meet customer needs.

Wyandotte will continue—as it has throughout the period of shortages—to allocate its production fairly to its regular customers at all times. Meanwhile, Wyandotte looks forward to the day when all requirements can be met promptly and entirely.

OFFICES IN PRINCIPAL CITIES

WYANDOTTE CHEMICALS CORPORATION • MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine
Hydrogen • Sodium Zincates • Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

RAW MATERIAL MARKETS

As of Sept. 5, 1946

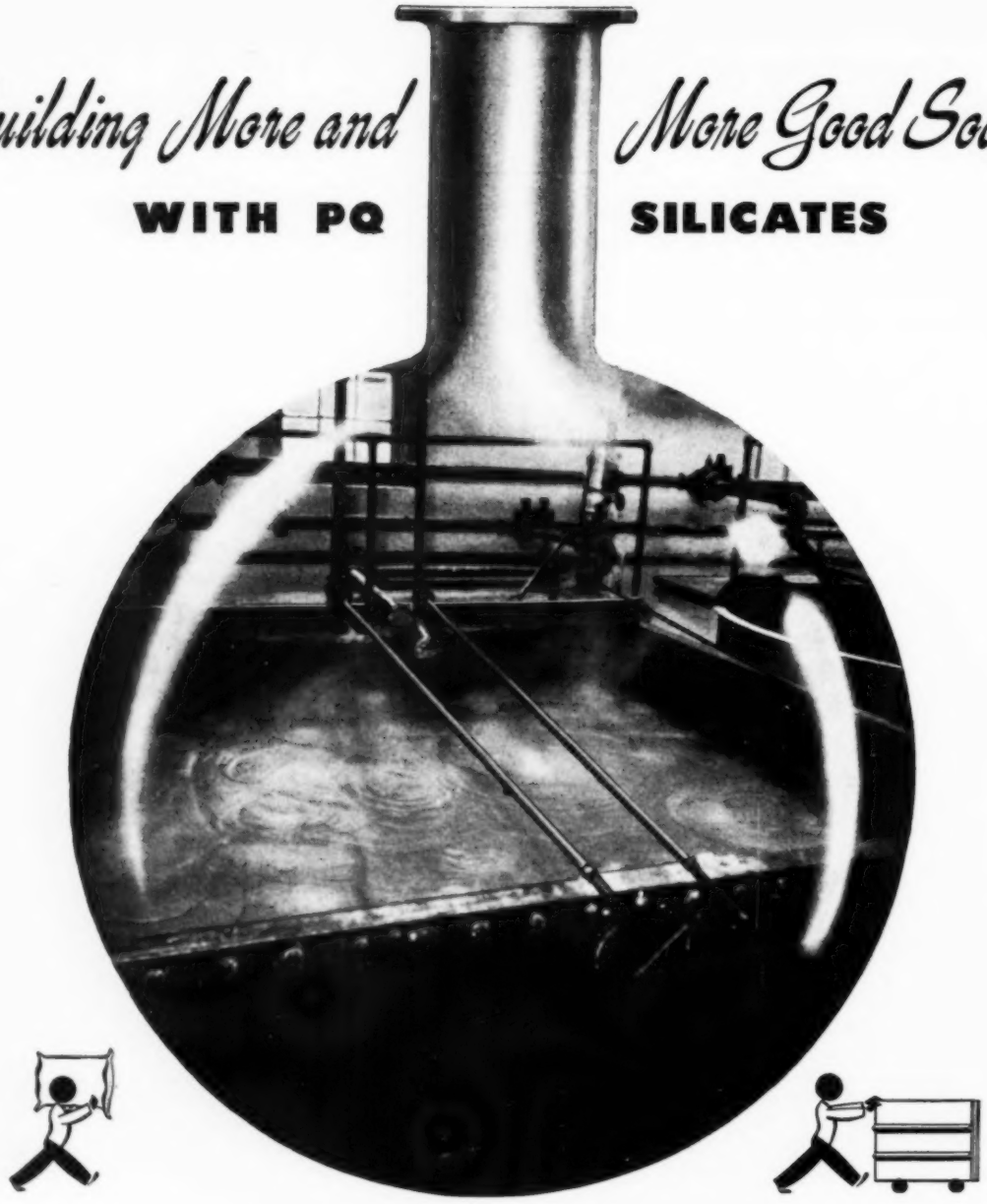
PRICE news of fats and oils, which approached the record levels of 1919 during the early days of August, was the dominant market note during the past month. Restoration of meat ceiling prices brought a rush of cattle and hogs to marketing centers to beat the Aug. 29 deadline. As a result of this flood of animals to market, prices fell sharply. In attempting to sell their cattle before reestablishment of ceiling prices $10 to $11 lower than those existing at the time, farmers drove the prices down from one to four dollars a hundredweight on most cows and steers, while hog prices registered drops of from three to eight and one-half dollars. According to press reports, 12 major terminals received 164,000 cattle, 21,000 calves, 75,000 hogs and 52,000 sheep and lambs on Aug. 26, as compared with 81,000 cattle and 44,000 hogs marketed the previous Monday. The Chicago run was the largest since 1934, when the drought forced farmers to unload their animals as a result of the cut in feed.

Earlier, according to the Fats and Oils Situation of the U. S. Department of Agriculture, the index number of wholesale prices of eight domestic fats and oils, at 238 per cent of the 1935-39 average, was 49 per cent higher than in June (during the first 10 days of August) and only two per cent under the post-World War I peak, reached in Nov., 1919. In spite of the higher prices, the USDA points out, no material increase in domestic production of fats and oils is in prospect within the next year. Production in this period is already partly determined by the 1946 acreages of oilseed crops and the size of the fall pig crop.

Prices of inedible tallow and greases at Chicago reached a peak of 45 per cent over the June level in the latter part of July. Price controls on domestic inedible fats and oils were restored July 26 at June 30 levels. The long range picture on supplies of fats and oils for the next year or so seems to shape up about this way: No material increase in domestic supplies of fats and oils is in prospect for the next 12 months. Factory and warehouse stocks on July 1, at 1,359 million pounds, were nearly 350 million pounds less than a year earlier and were the smallest for July 1, since 1926. Production of lard and grease next spring and summer probably will

Building More and More Good Soap..

WITH PQ SILICATES



Fat and oil scarcities mean extending supplies, yet the product specifications call for better cleaning efficiency. There's been a way to obtain both since 1860, when PQ Silicates began to be used in soaps.

Have you checked lately the percentage of silicate which you use? Perhaps a modification would result in an improved soap or detergent. For some brands it may be better to use a different grade of PQ Silicate, or even a potassium silicate for greater volume and stability of suds.

Be informed as to the variety of the PQ Brands—over 50 of them. Let us mail you Bulletin #17-1, which describes the most important of these.

1831 • 115th Anniversary • 1946

PHILADELPHIA QUARTZ CO.

DEPT. B, 129 SOUTH THIRD STREET, PHILADELPHIA 6, PA.

PQ SILICATES OF SODA

be smaller than in the spring and summer of this year as a result of a prospective reduction in the 1946 fall pig crop. Output of linseed oil from domestic flaxseed will be sharply diminished, with the 1946 crop of flaxseed now estimated to be down 40 per cent from last year.

Export supplies in world surplus-producing areas, particularly in the Philippines and the East Indies, are expected to increase, and it is likely that imports of oils and fats into the United States will be larger in the year which began July, 1946, than the 700 to 750 million pounds imported in the year that began July, 1945. At the same time, it is expected that exports of lard from the United States are likely to decline, reflecting current low stocks and reduced output in prospect for the first half of 1947. In addition, the Department of Agriculture has announced that after Dec. 31, 1946 it will undertake only limited commitments for exports of fats and oils. The United States exported 200 to 250 million pounds more fats and oils than it imported in 1945-46, whereas in pre-war years the United States had maintained a net balance of imports of around 1.5 billion pounds annually.

Meanwhile, the application of priorities to distribution of soda ash has been opposed by the Soda Ash Industry Advisory Committee on the ground that under priority ratings considerable tonnage would have to be shipped to new customers at the expense of old customers who were getting less than they required. Both soda ash and caustic soda continue in very short supply and it is now believed that there will be no improvement in the supplies of these two materials for the remainder of the year.

The essential oil picture showed slight change during the past month. Strikes and shortages at the plants of producers of basic raw materials for perfuming materials continue to plague the industry. Although imports are increasing, with demand strong and supplies short these move right into consumers' hands, thus giving no opportunity to build stocks. Higher shipping prices have had the effect of strengthening the price position of bergamot, boise de rose, etc. Two oils listed recently as not characterized by firmness in price were lavender and Algerian geranium.

During the month just passed, the OPA established a new formula for determining ceiling prices for producers' sales of bleached shellac. The action was taken because of rising prices of imported unbleached shellac.

—— • ——

Welch, Holme & Clark Moves

Welch, Holme and Clark Co., New York reported that the company was to move from 563 Greenwich St. to new quarters at 439 West St. about September 15, 1946. New telephone numbers will be CHelsea 3-6048, 49, 50, and 51. Welch, Holme and Clark Co., the president of which is E. D. Stults, was established in 1838 and incorporated in 1929. The company has been supplying the soap industry with oils, tallow, grease and chemicals for many years.

WHERE EFFICIENCY *Really* COUNTS!

IDEAL AMALGAMATOR TYPE "C" No. 83

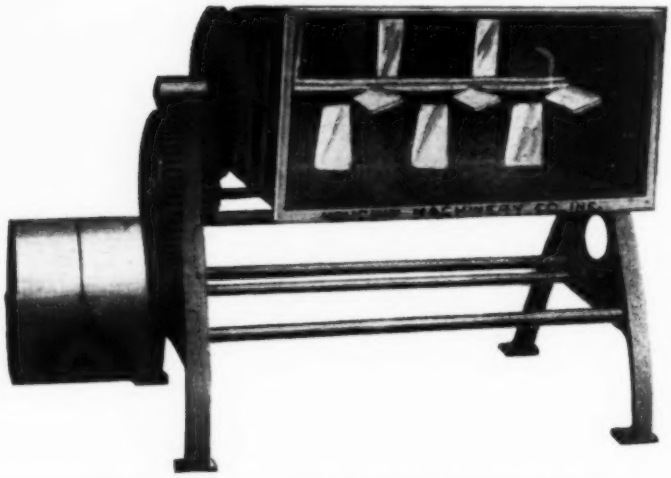
—made in two standard sizes with capacities of 200-250 lbs. and 250-375 lbs.

HOUCHIN AMALGAMATORS SAVE ON MILLING COSTS—

—because they are highly efficient

When adding perfumes and colors to toilet soap chips, it is essential that slippage on mill rolls be held at a minimum.

Houchin Amalgamators mechanically distribute all elements evenly and prevent any from remaining on the outside of the chips to cause slippage, which could slow up first milling by as much as 25%.



THE TILTING STYLE AMALGAMATOR

—has a capacity of 150-200 lbs. for the standard size (20" wide, 24" deep and 44" long). Other sizes with capacities in proportion also available.

•

Ask for Specifications of the Machine to Fill Your Needs

HOUCHIN
MACHINERY COMPANY, INC.

Manufacturers of Soap making equipment

Sixth and Van Winkle Avenues
Hawthorne, N. J.

Soaps in Organic Solvents

SOAPS are highly soluble in a mixture of solvents of which one is any glycol or dihydroxyl solvent, particularly with the two hydroxyl groups adjacent,—and the other is a hydrocarbon or a solvent which can dissolve a hydrocarbon, e.g., chlorinated hydrocarbons, alcohols, ketones etc. Such mixed solvents have a high solvent power for soap even when the separate solvents do not dissolve it.

Uses for Soap Plus Solvent

The following include some of the chief uses of soaps dissolved in organic solvents: (a) emulsification as in the manufacture of soluble oils for agricultural sprays etc., (b) lubricating greases and oils, (c) specialty soaps such as mechanics' hand soap, pine oil soap, metal polish, shaving paste, and shampoos, (d) dry cleaning, (e) defoaming, and so on. The solvent power of the mixtures mentioned can be used advantageously to produce these types of industrial products. Usually the main problem is to incorporate soap in a hydrocarbon solvent such as a petroleum fraction. For example in dry cleaning the cleansing power of solvent naphtha is much improved by dissolving in it a small quantity of soap.

Co-solvents

Ordinary soaps can be dissolved in hydrocarbons by the use of glycol-type compounds as co-solvents. Higher glycols or other derivatives are necessary for this. The property of soap of bringing about a pronounced increase in the mutual solubility of liquids is of help. For example, an addition of 15 per cent of sodium oleate will make benzene and propylene glycol completely miscible at room temperature, forming a clear mobile fluid, although the critical solution temperature of the system without soap is near 80°C. From the theory, such compounds as dibutyl tartrate and diamyl tartrate should serve the purpose.

The solubility of soap in dibutyl tartrate is very high and it is greatly increased by the presence of small proportions of hydrocarbons or chlorinated hydrocarbons. Thus, 100 grams of dibutyl tartrate dissolves 41.3 grams of sodium oleate at 25°C., and on addition of about 20 per cent of chloroform, benzene, amyl alcohol or any hydrocarbon solvent, increases the solubility by 10 to 30 per cent. A very useful property of such solutions is that they can be diluted with light petroleum fractions without precipitation of the soap.

To prepare soluble oil, commercial soap such as castile soap is dissolved in dibutyl tartrate containing 20 per cent of benzene or trichloroethylene. In this way a 30 per cent solution of soap can easily be prepared. The soap solution can be diluted with oil, vegetable or mineral, to make a final concentration of soap of about 3-5 per cent. The oil so prepared can be thinned to a creamy emulsion with water. The emulsion formed is very stable. By changing the type of oil, various industrial products can be made.

The same stock solution of soap can be used for dry cleaning, since it can be diluted with dry-cleaning fluids such as Stoddard solvent without precipitating the soap. Such solutions have good detergent power. Preparation of other specialty soaps offers no difficulty. It is necessary only to use a suitable compound having the glycolic groups, which are soluble in the solvent medium selected. When aqueous systems are concerned, any of the usual glycols can be used, as each of them increases the solubility of the soap to a remarkable extent. Monoglycerides or monoethers of glycerine can also be used. In nonaqueous systems, in addition to dibutyl tartrate any higher glycol or monoglyceride can be used if its solubility permits.

Soap in solvent mixtures of this type has no foaming power, even in concentrations as high as 20-30 per cent of soap. This property might have an application in defoaming. If a glycolic compound is added to an aqueous soap solution, the foaming power is considerably checked, and with a proportion of 30-40 per cent is practically destroyed. Ethylene glycol is not as effective as the other glycols. Propylene glycol, particularly when mixed with an alcohol or a ketone, can be used for such purposes.

Compounds which appear to have great potentialities in the soap-organic solvent field are tartaric acid and monochlorohydrin. From tartaric acid the esters of various aliphatic and aromatic alcohols can be prepared. Various aryl substituted compounds can be produced from chlorohydrin which can reasonably be expected to be very powerful soap solvents. The theoretical considerations involved suggest many possibilities. S. R. Palit *Soap, Perfumery & Cosmetics* 19, 471-2 (1946).

Higher Fatty Alcohols

ONE of the interesting war-time developments in German chemical industry was a process for production of higher aldehydes by the catalytic interaction of the higher olefines and water gas. The importance of the method lies not so much in the value of the aldehydes themselves as in the fact that they can be readily reduced to higher fatty alcohols; the latter are of wide importance in their sulfated form as synthetic detergents. Normally these higher fatty alcohols are made by the catalytic reduction of the fatty acids obtained from glyceride oils and fats.

The experimental work for this process was carried out by the Ruhrchemie but the capital stock in the operating company—the Oxo Gesellschaft, is held jointly by the Ruhrchemie, the I. G. Farbenind., and Henkel Co., which indicates its importance.

The process consists of reacting C_{11}-C_{17} olefines obtained by the Fischer-Tropsch method, with water gas in the liquid phase at about 150 atmospheres' pressure. The reaction results in a mixture of straight-chain aliphatic aldehydes and ketones, with the former predominating. Construction of the plant was begun in 1938 and it was scheduled to be in operation in 1942. It was damaged only slightly and could be put in operation in about 3 months to produce 10,000 metric tons per year, with comparatively easy expansion to produce 25,000 tons per year.

Yields of olefines of about 50 per cent have been obtained in the cracking unit operating at 400-450°C. The reaction is carried out batchwise. The converters are vertical and provided at the bottom with a shaft and bearings so that they can be tipped to a horizontal position at the ground level for repair and cleaning. There are 4 units, each 12 meters in length, with an internal diameter of 40 centimeters, with provision for 6 additional units.

The catalyst unit is charged three-quarters full with a suspension of catalyst material in the liquid C_{11}-C_{17} olefines. The catlyst is standard and is composed of 90 per cent cobalt, 7 per cent thoria, and 3 per cent magnesia, deposited as carbonates on kieselguhr. Each converter is provided with heating and cooling means.

Water gas is compressed to 300 atmospheres in 4-stage compressors and reduced to 150 atmospheres, at which pressure it is introduced into the bottom of the converter. Operating temperatures vary from 150° to 180°. The relative amounts of aldehyde and ketone can be varied by controlling the temperature—the higher temperature favors aldehyde yield but results in some polymerization, which in turn reduces the yield.

The capacity of the converter in total liquid products is 700-720 liters per batch, which corresponds to 500 kilograms or 1,100 pounds of product. The actual time for the reaction is 20-30 minutes, and the total time, including charging and discharging the converter, is approximately one hour.

The water gas is recirculated through the converter and fresh material added. The composition of the inlet gas is as follows: carbon dioxide 6 per cent, carbon monoxide 38-9 per cent, hydrogen 48-9 per cent, and the balance inert gases. Residual gas after reaction is carbon dioxide and inert gases 20-30 per cent, carbon monoxide 15-20 per cent, and hydrogen 40-50 per cent. The quantity of recirculated gas is 200 cubic meters per hour and of fresh gas 40-50 cubic meters per hour. The catalyst can be re-used 50-100 times, depending on the type of olefines employed. Gaseous olefines can also be used to produce lower aldehydes.

Separation of the oxygenated compounds from unreacted olefines is accomplished by fractional distillation. Reduction to alcohols is a very simple procedure in which a Raney type of nickel catalyst is used. R. L. Hasche and R. H. Boundy, U. S. Tech. Ind. Intelligence Comm. Report 22—XXVII—18; through *Chem. Trade J.* & *Chem. Engineer* 118, 693-4 (1946).

———♦———

Low Grade Fats

The A.O.C.S. Dry Extraction Method for Total Fatty Acids of Soap Stock and Acidulated Soap Stock is recommended for determining gravimetrically the fatty acid yield in low grade fats provided the method is modified to include the petroleum ether-insoluble but alcohol-soluble fatty acids. The A.O.C.S. Method for Glycerol in Commercial Soaps and Soap Products gives uniformly high results when applied to low grade raw fats. For all practical purposes glycerol yields obtained by this method on such fats should be corrected downward by 0.4 per cent.

The need for adequate catch basins in a fatty acid plant cannot be overemphasized. Much of the fat and fatty acids drawn off with water and emulsions from processing tanks will separate in the catch basins and can be reclaimed. The sewer system leading to the catch basins should preferably carry only processing liquors so as to keep the amount of water and the flow through the catch basins to a minimum. Separate pumps for each department are desirable in order to eliminate degrading of stocks as much as possible. J. L. Trauth. *Oil & Soap 23,* 137-40 (1946).

———♦———

Soap Rinsing Method

Alkali soap is rinsed from washed fabric in a rinsing bath containing a metallic salt of a character to react with the soap to form an insoluble metallic soap. The fabric is first squeezed to expel most of the soap solution. It then passes into a rinsing bath and is loosened from its compressed state to provide complete saturation of the fabric. The fabric passes into, through, and out of the bath continuously in less than one minute, so that the retained alkali soap in the fabric is not converted to insoluble metallic soap. The rinsed-out soap floats upward to the surface of the bath and is drained off. A. Schellenberg. Canad. Pat. No. 435,218.

ROACH TEST

(*From Page* 159)

At the 70 per cent mortality level, gamma-benzene hexachloride was the most toxic to German roaches, with pyrethrum a fairly close second. Pyrethrins were the most toxic to American roaches. DDT was second in lethal effect on American roaches and third on German roaches. Sodium fluoride was the least toxic on the basis of micrograms of toxicant per gram of body weight of insect.

———

Insecticidal and fungicidal compositions contain as an active ingredient an aminated chlorinated kerosene. C. C. Clark, to The Mathieson Alkali Works. Canadian Patent No. 434,209.

LIVESTOCK SPRAYS

(*From Page* 137)

per season for DDT to get an added gain of 50 pounds per head. Because Kansas livestock growers, for the past few years, have been blazing the trail in the use of power in cattle grub and louse control, they now have more than 200 high pressure power sprayers for use in this program. The State of Oklahoma has likewise forged to the front with practically as many high pressure sprayers. The purchase of this amount of equipment in these two large cattle producing states is an accurate gauge of our cattlemen's belief that such treatments pay. Dr. E. W. Larke of the U. S. Bureau of Entomology states that "whenever you can get from 1,202 to 2,306 extra pounds of gains in weights, as we did in the Kansas tests, from the use of only one pound of technical DDT, there is no question of its acceptance and general use."

Informed cattlemen state that, this season, at least one-half of the 2,830,000 beef cattle in Kansas and one-half of the 2,070,000 beef cattle in Oklahoma will be treated with DDT. Fifty pounds additional gain per head on half of these 4,900,000 cattle in Kansas and Oklahoma can mean an extra 122,500,000 pounds in weight, which is equivalent to 73,500,000 additional pounds of beef. What other practice will pay as big dividends and serve hungry humanity as effectively as this DDT fly control program?

Area Fly Control

ELLSWORTH COUNTY, in central Kansas, has made a real start on area hornfly control. The spraying of cattle, barns, sheds and other outbuildings was started in May of 1946 in the center of an area twelve miles square. Every head of cattle in these 144 square miles has been sprayed with 0.25 per cent DDT suspension. The county agent and his cooperators are keeping cattle and farm buildings on the perimeter of this area as free from flies as possible. They reason that, if the first DDT spray was properly applied, few live flies would be left and that spraying the cattle and buildings on the outside edges of the area will prevent reinfestation.

A forward step in cattle fly and louse control has also been taken by the Kansas City Livestock Market. At the Kansas City Stock Yards we are now offering a service of spraying outbound cattle with DDT at a charge of 15c per head, with not to exceed $6.00 per carload. The 10 x 30 foot spray-chamber that accommodates a carload of cattle is equipped with 600 spray nozzles, with one nozzle for each square feet of floor space to provide underline spraying and a like number of nozzles for spraying toplines and sides. Right now, we are treating cattle for the control of flies and lice with 0.25 per cent DDT applied at 500 lbs. pressure. Buyers of replacement cattle will find that in winter months they can go home with cattle properly treated for grubs and lice. We have a feeling of pride in the part our Committee has had in establishing this constructive program and service.

What the Cattleman Wants

IN regard to the controversial question of the use of DDT emulsions by the public, practical investigators for years have questioned the use of oil sprays on cattle and agreed that oil sprays should be used with caution since they are likely to irritate and blister the skin. In Texas, within the past month, two registered bulls and 10 pure bred Brahma cattle died soon after going through a vat charged with 45 gallons of 25 per cent DDT emulsion which had been only slightly stirred. Fifteen other cattle next put through the swim reported "as good as dead" the following day. The neighbor's cattle put through later, when the dip had been thoroughly mixed by other cattle, showed no ill effects. It is reported that the hides of the affected animals were cracked and that analysis showed a high concentration of DDT in the livers. However, in one Kansas test, this year, cattle were dipped in a 0.2 per cent DDT emulsion after the mixture had been thoroughly stirred. No injury in the cattle has been reported.

The fact remains that the most foolproof method of treating cattle with DDT is with the DDT wettable powder in suspension. Manufacturers of DDT oil emulsions will need to educate the public to the proper mixing and use of their products on livestock before they can expect acceptance of their products by livestock growers.

If rotenone-bearing powders continue short this coming season, we shall need a larvicide to take the place of derris and cubs' to control cattle grubs. You already know of the many tests with larvicides for grub control, one of the most promising of which appears to be benzene hexachloride.

Right now, what the livestock industry wants is an insecticide that will effectively and promptly kill stable flies and horse flies on cattle and horses and one which will keep on killing them over a period of at least two weeks. In our own local tests we are trying out BHC, DDT and other members of the DDT group. Some show promise.

The old practice of spraying the dairy cow night and morning with kerosene spray is decidedly on the way out. The livestock industry is looking for a single product that will effectively control all types of flies, lice, ticks and grubs on cattle for comparatively long periods without irritation or injury to the hair coat or animals. A few of your products appear to approach this goal. Naturally, we look to the insecticide industry to develop and perfect livestock insecticides to increase our nation's meat supply and the livestock grower's net income.

INDEX TO ADVERTISERS

*For further details see announcement in 1946 SOAP BLUE BOOK

Every effort is made to keep this index free of errors, but no responsibility is assumed for any omissions.

Tale Ends

W. L. CRUTCHER of Southern Cotton Oil succeeds McConlogue as chief of the Soap and Glycerine Section, Industrial Oils Division, Fats and Oils Branch, U.S.D.A., says the news. To those industry wits who are already sharpening their needles to give Crutcher a jab, we might state that he is fully conscious of his name, has a tough hide, and a broad sense of humor. They say he is a fast worker, in fact no plodder, likes to mill around, and gets on well with the press. So, any day now, look for a news story herein: "Crutcher interviewed by soap press."

• • •

To Dudley Lum, Givaudan-Delawanna Chicago luminary, goes mention as a record-breaking grandfather. Three grandchildren in three days! And his first grandchildren at that. One Lum daughter had twin girls and three days later, another, a boy. The Lums score again! And for you, Grandpa Lum, congratulations!

• • •

Some exterminators report that their bedbug work has fallen off more than half as a result of the use of DDT over the past year. Rather startling news! Imagine your service being so good that you are in a fair way to put yourself out of business!

• • •

Soya bean oil is being diverted from food uses to the paint trade on account of a scarcity of linseed oil, says the news. May we also recommend to the paint trade that they look into the possibilities of this imitation scotch whiskey, the so-called domestic scotch-type, in the varnish kettle from whence it apparently first came.

• • •

When cigarettes were scarce, they were kept under the counter. But, soap flakes are kept in the back room to find their way quietly and mysteriously into the grocery orders of XXX gilt-edge customers only!

9

Volume XXII
Number 9
September, 1946

SOAP and SANITARY CHEMICALS

CONTENTS

Published Monthly By
MAC NAIR-DORLAND COMPANY
254 West 31st St., New York, N. Y.

Subscription rate, $3.00 per year. Foreign, including Canadian, $4.00. Copy closing dates—22nd of month preceding month of issue for reading matter and 10th of month preceding month of issue for display advertising. Reentered as second-class matter, Feb. 9, 1938, at Post Office, New York, under act of Mar. 3, 1879. Mail circulation July, 1946, 5110 copies. Total circulation 5300.

Ingenuity PAVED THE WAY!

Ingenuity paves the way in modern container-making too! **National,** through its ingenious application of materials and methods, explores all the possibilities of metal packaging to help solve your problem.

Under the capable supervision of craftsmen . . . on specially developed equipment . . . in plants strategically located, **National** produces a complete line of metal containers that will protect your product on the commercial highways of today.

Our sales representatives, technical and laboratory staffs are available to you without obligation. Sales offices and plants in principal cities.

NATIONAL CAN CORPORATION

Executive Offices: **110 EAST 42nd ST., NEW YORK 17, N. Y.**

AS THE EDITOR SEES IT

NO price relief for the soap industry in the immediate future! A soap shortage growing in severity, as the low profit items disappear completely from dealers' shelves! These are the completely negative results from the OPA industry advisory committee meeting in Chicago last month. In short, the OPA has washed its hands of the soap industry's pricing problems, refuses to treat the industry's case on an industry-wide basis, and advises individual manufacturers seeking price relief to go through the long drawn out procedure of individual price appeals, which take endless time, keep hundreds of OPA clerks busy with involved paper work, and normally end up with the soap maker being allowed to charge a price just high enough so that he can cover his cost of production.

Let not OPA kid itself! This is not going to get any soap produced. The soap makers we know are not dopes by any means, and are not interested in using up fat quotas just to get back their cost of production. They will simply continue to put their fat supplies into items that can be sold at a profit, and the low profit laundry soap products, which are currently in such short supply, will for all practical purposes simply cease to be manufactured.

Grounds for the OPA's refusal to treat the problem of soap pricing on an industry-wide basis are, to say the least, unique. We had a feeling that the OPA would think up a good one, but they have really surpassed themselves this time. Now it seems that the soap industry is not an "industry," at least according to the OPA definition. There are too few companies that are of the "straight line" variety, making soap as their major product. Too many of them, the OPA reasons, have other sources of income from the sale of shortening, meat products, cosmetics, insecticides, disinfectants, etc., and are not solely dependent on their soap sales to make a profit. On this ground, the OPA refuses to consider immediate industry-wide price relief. They prefer, we suppose, to stall a little longer until either increasing coconut oil arrivals solve the fat shortage, or the irate American housewife forces a more realistic handling of the problem.

THE recommendations of the Committee on Small Businesss of the House of Representatives regarding the soap industry which were published last month have raised a wide series of controversies within the industry. Strange as it may seem, each soaper appears to fit his thinking on fat quotas, quota periods, exemptions and the like on the side on which his bread is buttered. With the chips down, we have looked about for one of those generous souls "with the interests of the industry as a whole at heart" and find none. Those who want quotas reshuffled are those who believe they will gain by the process. Others who want them to remain as they are, are those who stand to lose in any reshuffling.

With insufficient fats to go around, except in the case of those who produce their own,—and until oils and fats are decontrolled, this situation is unlikely to change,—any revision of quota bases can mean only one thing, take fat away from some in order to give it to others. Whether this would be fair or unfair depends wholly on the circumstances of each individual case. It is not a situation which can be judged fairly en masse. Injustices undoubtedly exist under the present quota set-up. Other injustices would be substituted were it revamped. The whole thing is a complicated affair with many faults, but it cannot be set right merely by changing quota periods or with a sweeping wave of the hand.

In the hope that exports of fats and oils may be cut, and that new and larger supplies may be made available in the not too distant future, we feel that it may be better to sweat it out on the present basis than to attempt to complicate further an already complicated mess. We also feel

that the next move should be full decontrol of both fats and soaps for which any quota reshuffling would be but a make-shift substitute.

FOLLOWING publication of the recommendations of the Committee on Small Business of the House of Representatives for the soap industry, a letter was sent to the Secretary of Agriculture from the Association of American Soap & Glycerine Producers requesting that no action be taken on the recommendations until the Soap Industry Advisory Committee had been consulted. In view of the fact that the House Small Business Committee held hearings over five months ago and had at that time given all interested parties ample opportunity to speak their pieces, a request of this kind at this time would appear to be more than impertinent.

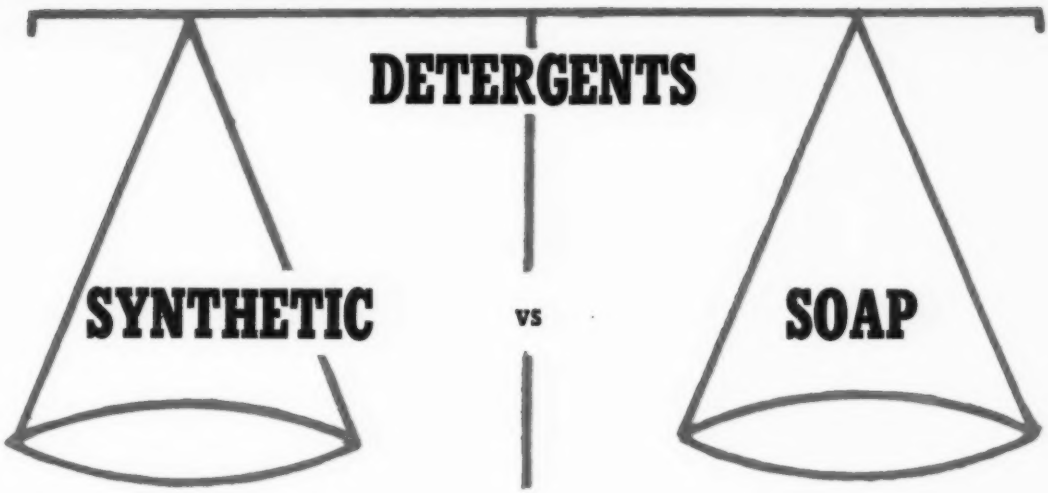
As far as we can see, the Association chose deliberately to boycott the hearings last April inasmuch as no representative attended. They unquestionably knew that the hearings were to be held. In failing to have a representative attend, we feel that the Association was derelict in its duty to its members and to the whole industry whose best interests it has always purported to represent and protect. Its request to the Secretary of Agriculture at this late date deserves little if any consideration. Furthermore, such a letter might be construed as conveying unfair and unwarranted implications regarding the Soap Industry Advisory Committee, not to mention deliberately involving the Advisory Committee in a direct controversy with a committee of Congress.

NYLON lines are out of date. No longer do housewives stand in line hours on end to buy a pair of hose. Instead, soap lines have become the vogue,—soap and other necessities that the new price law which Congress dumped in the lap of the OPA have once again placed in or near the famine class. Just recently, word spread around a neighborhood in Brooklyn that the local A&P had Rinso. Our informant without make-up or hair-do highballed for the nearest store and took her place in line. An hour or so later the perspiring clerk blandly announced that the supply had run out but that they hoped to have more in two or three days. The comment which ran up and down the line proved beyond a doubt that the vocabulary of the average Brooklyn housewife is far more extensive than has been generally believed.

This is just a sample of what we are about to see all over the country. The famine stage in supplies of laundry soap products is near at hand. Most laundry soapers have reached the point where they are flatly refusing to sell any soap at current ceiling prices. The ire of American housewives is on the rise. But it would seem that the OPA chooses to ignore both facts. They may receive a reminder at the polls a month or so hence. Government officials may waste millions just as long as it does not touch directly the person of Mrs. Snoogleberry,—but when she cannot buy soap to wash Uncle Henry's work pants, that is going too far!

TO those soapers who look forward eagerly to the day when fats and oils will be in sufficient supply to be decontrolled so that they may buy all they need,—and when soaps may likewise be decontrolled so that they can sell what they make at a profit,—the 60,000 tons of copra exported from the Philippines in July ordinarily should give heart. When they told us that the 48,000 ton figure for June was probably just a flash in the pan, a last big gesture by CEMCO before it went out of business, we would have been glad to have settled for 30,000 tons in July. And along came 60,000! We are beginning to suspect that somebody was kidding us. But we can take it. We hope they fool us good and plenty again for August and September!

But in spite of heavy copra shipments from the Philippines, there is another fly in the coconut oil ointment. Copra arrivals on the West Coast are piling up with storage space at a premium and are not being crushed. Price ceilings are again the answer. Just as soapers are refusing to make and sell soap at a loss, copra crushers will not produce coconut oil at a loss. Uncrushed copra cannot help the soap situation, nor can it aid in relieving the acute glycerine shortage. Score one again for the OPA!



By
J. W. McCutcheon

A GOOD deal has been written in recent years on the effect synthetic detergents may have on the soap business and what fraction of the latter may permanently be lost. Stimulated by war economy where all fats and oils were at a premium and where the exigencies of war created unusual demands for detergents of special qualities, synthetics have developed so fast that there are some who think soaps may finally become obsolete, much as natural silk has been displaced by synthetic fibres. On the other hand there are others who refuse to consider any alternative but that soap will triumph over all competitors, and synthetics are but a temporary phenomenon in present world economics. As the basis for an opinion, thereon, it is necessary to review briefly the subject of detergency, the characteristics of soaps and synthetics and the classification of the latter.

To be a good detergent, a compound must be soluble to some extent in water; it must lower the surface tension of the water, allowing the latter to penetrate the capillaries of the fibre and to wet them; it must reduce the interfacial tension to a point where the solid dirt or oil particles are displaced by the solution and finally to emulsify such displaced dirt or oil and hold it in solution until it it washed free of the fabric. This is a chain of physical reactions. Not all chemicals frequently classed as detergents accomplish this series of reactions. Frequently a compound will be successful at lowering the surface and interfacial tensions but will fail to emulsify or fail to hold the emulsified dirt in suspension. Such compounds are better classed as wetting agents or penetrants. It therefore follows that while all detergents are wetting agents, not all wetting agents are detergents.

In the same way we may compare a foaming agent with a detergent. The former is dependent only on the stability of the liquid air interface. The latter has this plus other factors as well. Thus detergents in general lather well, but such a property alone is not a measure of washing power. The broad term "surface-active agent" includes wetting, penetrating, foaming and emulsifying agents as well as detergents. Soap however, is not always used for its detergent powers. Sometimes it serves merely as a wetting agent. Its other surface-active properties are not used. They may be compared to the extra two cylinders in a car,—the reserve power, useful when the going gets rough. To compare soap and other surface-active agents properly, therefore, it is necessary to do so on the basis of use. Thus soap used as a cleaning agent must be compared with synthetic detergents, not indiscriminately with all synthetic surface-active compounds.

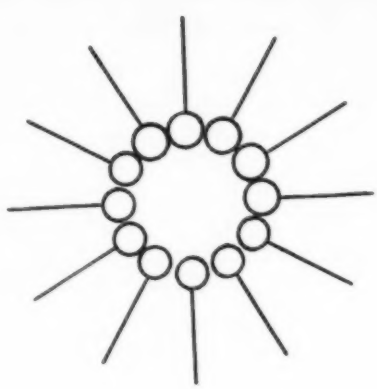
Establishing a comparative method of determining degree of detergency has been a most baffling problem. Attempts to correlate such physical data as surface tension, interfacial tension, viscosity, etc., have not been too successful to date. Each test indicates only one phase of the problem, and the relation one bears to the other is not well known. A practical solution is obtained by use of the launderometer, which is merely a method of standardized washing on a laboratory scale. The cloth is soiled, uniformly with lamp black in an oil or water soluble base, depending on the type of test desired. The color before and after washing is compared by means of a photometer. Very interesting data may be obtained by this means. For example a tallow soap at a concentration of 0.2% gives maximum detergency under normal conditions of time and temperature. If less is used, the surface tension falls off. If more is used, some soil is redeposited on the fabric. A similar redisposition occurs if the washing is unduly pro-

longed. This is said to be due to the absorption of the soap onto the fabric with subsequent reduced strength of detergent and redeposition of the soil.

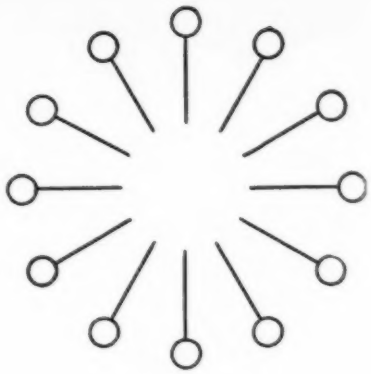
Thus even under rigidly standardized conditions, the detergency of a soap or synthetic compound varies in non linear fashion with its concentration and with the time or operation. Similar variations can be shown to exist with changes of temperature or with change of pH. Other factors involved which yield step by step variations are the (1) type of surface from which the soil is being removed, (2) type of soil, (3) hardness of the water, etc. A detergent rating for soaps A & B for example might easily be reversed by varying the water hardness or the temperature. Thus detergency from launderometer tests must be interpreted specifically for the conditions laid down. Nevertheless, in the face of such difficulties, a fund of information on the detergent action of the soaps has been accumulated and correlated to a certain degree with purely physical tests.

A sodium soap molecule, may be represented somewhat as diagrammed below using the latest available physical data on interatomic distances.

When placed in water the sodium polar group or hydrophilic group as it is called of each molecule at the surface is oriented toward the water; the hydrocarbon, non-polar or hydrophobic group, stands out into space like the bristles on a brush. This is the orientation existing for the layer of molecules at the surface. An oil drop is then readily adsorbed by the hydrophobic end of the chain and tied through the soap to the water layer. This is the beginning of an emulsion. A drop of water in oil and oil in water would be represented as above showing the oriented surface molecules.



WATER IN OIL EMULSION

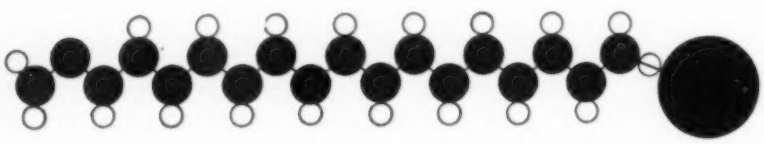


OIL IN WATER EMULSION

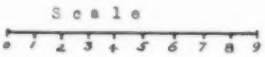
The length of chain has a profound influence on the ability of a soap to exert detergent properties. For example, it is well known that palm oil soaps do not stand up to as high a temperature on the laundry wheel as tallow soaps. This is because the former contains a higher percentage of palmitic and a smaller percentage of stearic acid than the latter. Lengthening the fatty acid chain decreases the solubility and increases lathering power up to a point. Thus it would appear that a soap may be too soluble to lather well. Below C_{10} for example the sodium salts of the fatty acids are not considered soaps at all. On the other hand, above C_{18} the solubility falls off to such a degree that again detergency is impaired so that fats containing such acids make inferior soaps, e.g. hardened whale oil. Increasing the temperature increases the solubility, and for the C_{18} sodium stearate this means improving the detergency. A similar increase of temperature makes the C_{12} soap or sodium laurate slightly too soluble and greatly decreases detergency. Thus soaps from coconut and palm kernel oils containing an abundance of C_{12} and C_{14} acids work best in cold water and are called cold water soaps. Those from tallow containing the C_{16} and C_{18} acids in abundance are recommended for laundry work where temperatures of 160-180°F. prevail.

The physical chemistry of soap solutions indicates that at concentrations used for detergent work they exist as colloidal electrolytes and are probably agglomerated into groups of 5 to 20 molecules forming micelles. When true solution is effected through increased temperature or decreased chain length the soap loses its surface activity and detergent properties. Likewise, with the reverse conditions, the effective concentration is reduced below the minimum for good results.

With potash soaps, the same general relation between detergency and chain length holds, only shifted an octave higher on the scale. Solubility strength for maximum detergency, lathering power, etc. are all altered, but in a uniform and consistent way.



SODIUM STEARATE *



* In the above diagram, the large black circle symbolizes the sodium atom; the smaller black circles represent carbon; and the white circles represent hydrogen. The white circle with the diameter line represents oxygen. Some of the white circles appear to be missing. Actually they are present but not seen. In this spacial orientation of the molecule, some of the symbols for hydrogen and the carboxyl oxygen are obscured from view by other symbols.

The metal or organic ion also exerts its influence on the overall action of the soap. For example, potassium soap is easier on wood floors than sodium soap. The same is true with other types of soap ions available, such as ammonia, triethanolamine, lithium etc. The fatty acid salt of each ion forms a distinct type of soap, the properties of which change step-wise with the substitution of longer or shorter length fatty acid chains. The selection of the type of metal ion and chain length to meet the requirements of a specific detergent, or emulsifying problem is a job requiring extremely careful selection.

IT appears to the author that the soap industry broadly speaking has not yet availed itself of the many ramifications of modern fat splitting and distillation. Just as the railroad has been partly overhauled by the bus, so the soap industry has suffered in part by synthetics. These latter were developed with a view to overcoming the greatest drawbacks to the universal use of soap, namely its inability to be used in acid solutions and its precipitation from hard water by lime and magnesium.

If the polar group of the fatty acids could be modified so that it did not precipitate the fatty acid in an acid solution, and so that the calcium and magnesium salts were sufficiently soluble to prevent their precipitation from hard water, then an exceptionally useful detergent for the textile trade would be available. This problem was solved in Germany in the late twenties by the copper-chromium reduction of the fatty acids to the alcohol with subsequent sulfation and neutralization to provide the polar end group. Thus lauric acid from coconut oil is made to produce sodium lauryl sulphate.

This product, trade named "Gardinol," was introduced to America in the early thirties under the joint ownership of Procter & Gamble and DuPont de Nemours. The success of this compound in the textile trade was very great. Mixed 50/50 with sodium sulfate to enhance its detergent properties, it sold initially at about $1.00 per pound. Another early developed type of synthetic was the "Igepon" group

$$C_{11}H_{23}COOH \xrightarrow{H,\ Cu\text{-}Cr} C_{11}H_{23}CH_2OH \xrightarrow[+neut.]{H_2SO_4} C_{11}H_{23}CH_2OSO_3Na$$

lauric acid — lauryl alcohol — Gardinol

$$C_{17}H_{35}C(=O)Cl + H_2N\text{-}CH_2\text{-}CH_2SO_3H \rightarrow C_{17}H_{35}C(=O)\text{-}NH\text{-}CH_2\text{-}CH_2SO_3H$$

stearyl chloride — taurine — An Igepon

made by condensing taurine or its derivatives with the acid chloride.

The American interests of this compound were vested in Lever Bros. and General Dyestuff Corp. A compound belonging to the same family type as "Igepon" is controlled by Colgate Palmolive Peet under the name "Arctic Syntex." The large soap companies have been aware for many years of the possibilities of these newer type compounds and have taken steps to see that their interests in this field would be protected. The costs involved in building up a patent structure and in putting in the necessary specialized processing equipment have no doubt been a barrier to the smaller soap maker who has left this field generally to producers of specialized organic chemicals, who have been able to adapt their existing equipment more readily.

Although a bewildering array of synthetic surface-active agents have flooded the market within recent years, an analysis of their composition shows that they may be reduced to a dozen or so main types such as the sulfonated alcohols, alkyl naphthalene sulfonates, poly esters etc., and of these probably not more than four or five show real promise as detergents, the balance being wetting, foaming, emulsifying agents etc. Trade naming the compounds produced is a matter of individual taste. Some keep the same generic name for totally different classes of chemicals: "Penetrol —60" and "Penetrol —65," "Aerosol A Y" and "Aerosol A S." Others use the letters to denote state, such as solution, powder, etc.; others, more commonly perhaps, use letters or numbers to designate modifications of the same basic chemical, as "Span" —20, —40, —60, etc. Frequently chemicals of the same or almost the same chemical constitution will appear under different names due to several manufacturers collaborating on their production. For example "Duponol," "Orvus" and "Aurinol," representing different manufacturers, all belong to the same basic family of sulfated alcohols. A study of the field of synthetic detergents therefore involves classifying the various materials on the market according to their chemical constitution and then giving consideration to the modifications possible within each field. A few of the main classes with some of the principal trade names appearing under each are as follows:

(1) *The Sulfated Alcohols.* $R\text{-}CH_2\text{-}OSO_3Na$

This class, discussed above, is very stable to acids and alkalis and with the long chain fatty acids from C_{12} —C_{18} gives exceptionally good detergents. A few trade names belonging to this class are "Avitex," "Duponol," "Gardinol," "Aurinol," "Napro," "Napronol," "Modinal," "Orvus." Related as first cousins are similar petroleum derivatives, such as the sulfated hydrocarbons exemplified by "Wetanol," "Teepol," "Tergitol," or the sulfated aryl alcohols such as "Supersulphate F.S."

The length of the hydrocarbon chain in the synthetics varies the solubility, lathering and detergent properties, as it does in the normal soaps. Placing the sulfate group in the centre of the chain, thereby breaking the long uninterrupted hydrophobic group, decreases the detergent properties generally, although wetting and other properties may not be impaired. Detergency is impaired if the chain contains an

(*Turn to Page* 141)

CHLORINE DIOXIDE

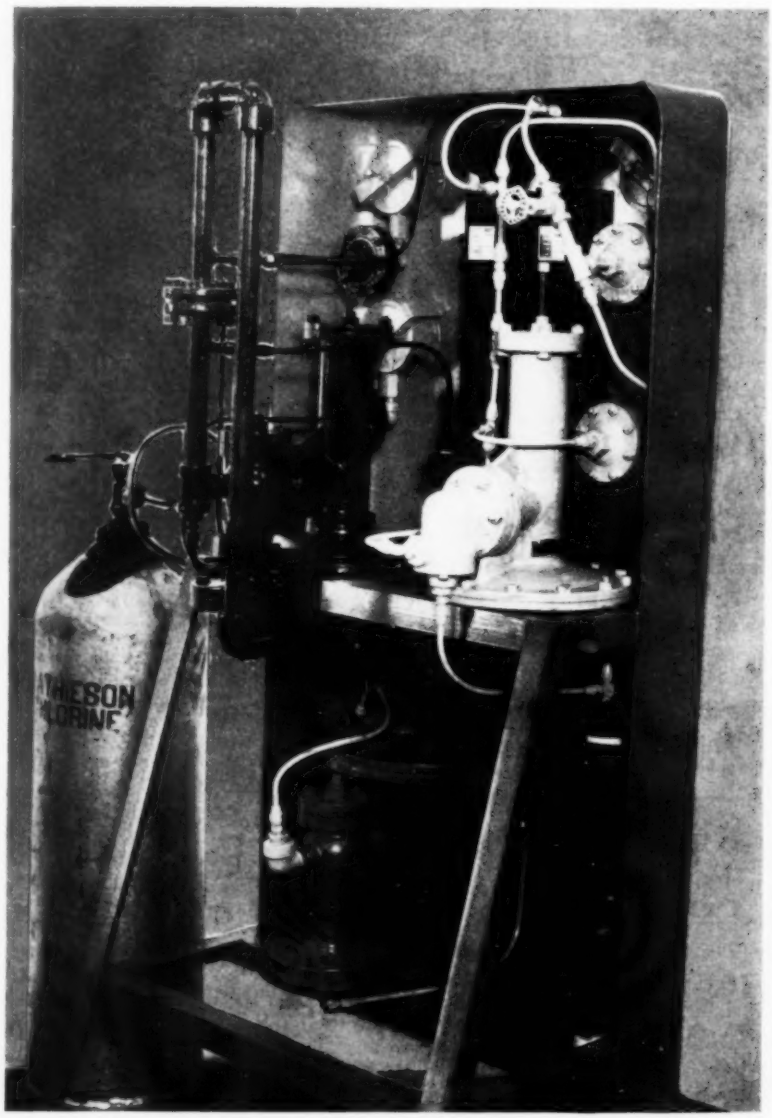
Oxidizing Gas, Generated From Sodium Chlorite at Points of

By E. R. Woodward and G. P. Vincent
The Mathieson Alkali Works (Inc.)

SODIUM chlorite bleaching of fat has become established in large scale commercial application during the past year (1). By this process, crude fats are upgraded to a quality which makes them suitable for use in the manufacture of high grade laundry flakes and toilet soaps. Refined fats also are considerably improved in color and odor. This chemical treatment gives a much higher yield than any of the adsorption methods and is thus increasing the available supply of high grade tallow which can be used for making high grade soaps.

Renderers and soap manufacturers, who have had to rely upon the adsorption process, have long been interested in the development of more efficient methods of bleaching fats. Interest in chemical bleaching has been slight, however, because of the belief that any chemical which would be effective as a bleach would also cause deterioration of the fat.

The critical shortage of high grade tallow renewed the search for some method which would give increased yields and more efficient upgrading of fats. When it was demonstrated that chlorite can bleach wood pulp and textiles without attacking the chemical structure of these materials (2, 3), interest was aroused in the possibilities of chlorite for bleaching fats and oils. It has since been demonstrated that chlorite bleaching of fat, when properly conducted, affects only color and odor. Iodine value and titer remain virtually unchanged, and the soap-making quality of the fat is in no way adversely affected.



Rear view of control panel, showing chlorine pressure reducing valve, chlorine flow control valve and valve regulating air flow.

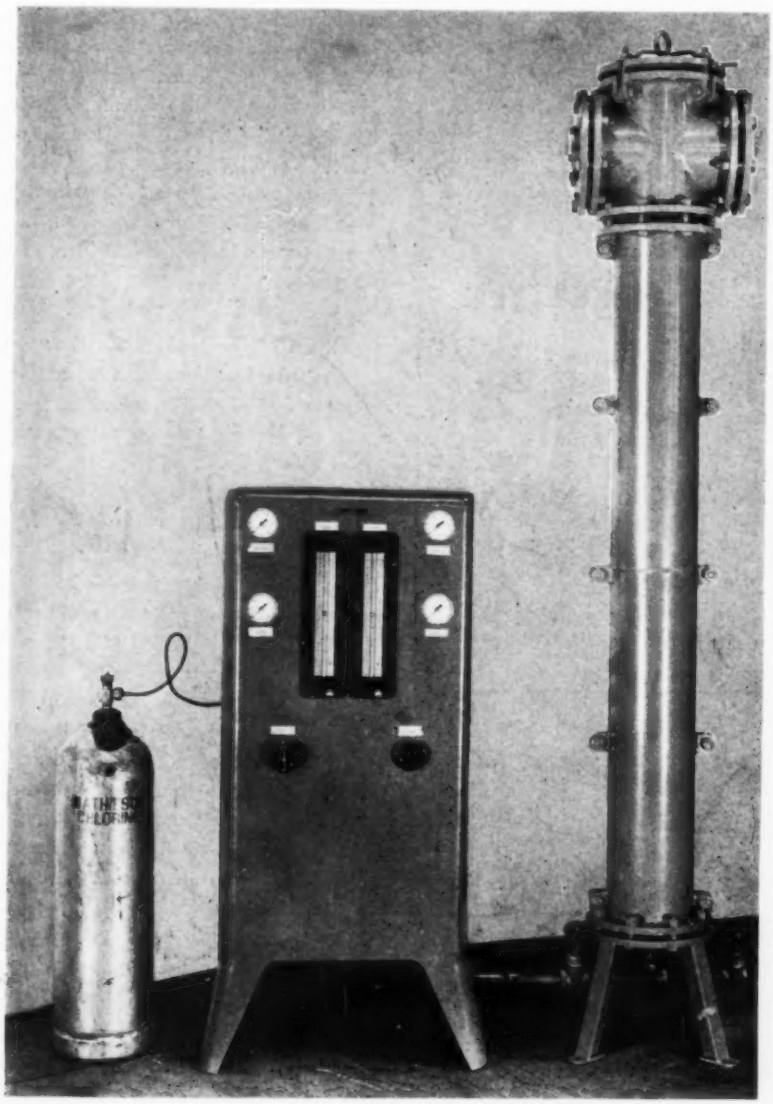
FOR FAT BLEACHING

Use, Improves Color and Odor with No Deterioration of Fat.

The use of sodium chlorite, $NaClO_2$, as a bleaching agent depends upon its reaction with various chemicals to produce chlorine dioxide, ClO_2. Chlorine dioxide is a gas with a very powerful oxidizing capacity. In terms of "available chlorine," it is 2½ times as strong as chlorine itself. Although chlorine dioxide has been known to chemists for a long time, it was not generally applied in commercial production because it is unstable and cannot be shipped or stored . It must be generated at the point of use as needed. When sodium chlorite became commercially available, a practical method of generating chlorine dioxide was developed. For fat bleaching, there are two reactions, either of which may be used to advantage. These reactions are represented by the following equations:

$$5\ NaClO_2 + 2H_2SO_4 \rightarrow 4\ ClO_2 + 2Na_2SO_4 + 2H_2O + NaCl$$

$$2NaClO_2 + Cl_2 \rightarrow 2ClO_2 + 2NaCl$$



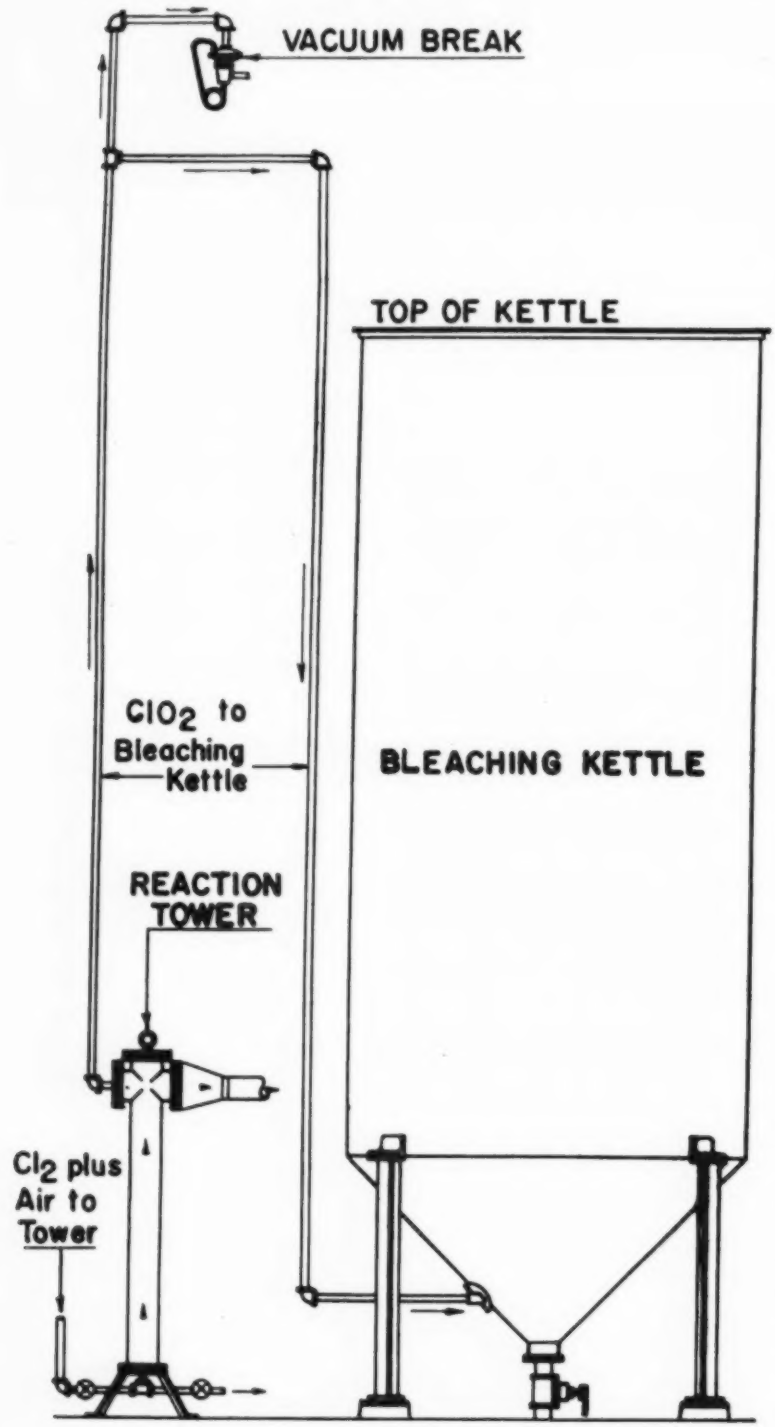
Apparatus for generating dry chlorine dioxide. Chlorine gas cylinder at left, control panel in center, sodium chlorite tower at right.

ClO_2 in the Fat Kettle

The first commercial method for bleaching fat with sodium chlorite involves the generation of chlorine dioxide in the kettle itself. The sodium chlorite is added to the kettle together with the activating agent, which may be either an acid or chlorine, as outlined above. The fat is agitated with steam, and the chlorine dioxide which is formed "in situ" accomplishes the bleaching.

Bleaching Brown Grease

Large scale bleaching of brown grease by the acid-chlorite method has been carried out as follows, to give a color change from 41 F.A.C. in the crude tallow to 13-15 F.A.C. in the finished product: The tallow is heated to 210° F. and treated with 1% by weight 66° Baumé sulfuric acid (1:1 with water), plus 0.1% sodium chlorite in a 10% aqueous solution. The mixture is agitated for one hour, then heated to 220° F. to remove moisture, treated



DETAIL SHOWING METHOD OF CONNECTING CHLORINE DIOXIDE REACTION TOWER TO BLEACH KETTLE

at this temperature for 15 minutes with acid-treated clay, and finally filtered. Both brown grease and house grease may be bleached by the chlorine-chlorite process.

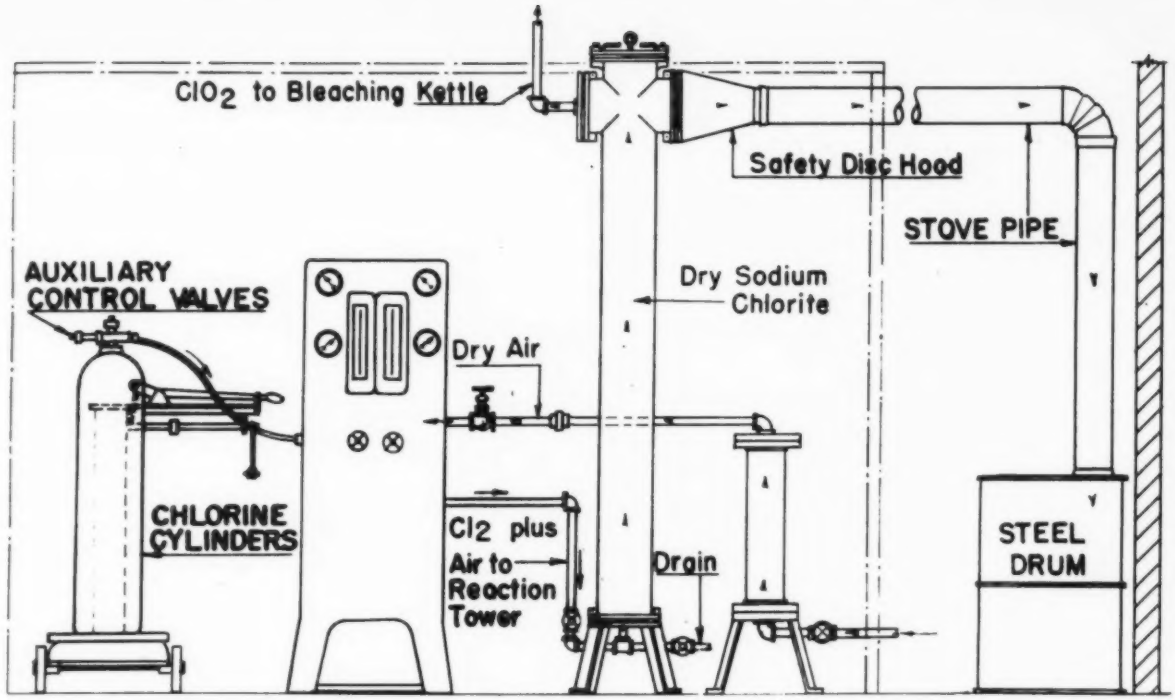
Bleaching Refined Tallow

One large renderer has accomplished large scale chlorite bleaching of refined tallow with both the acid and chlorine activation processes to produce a tallow of 3-5 F.A.C., as follows:

The tallow, as received from the rendering department, contains some free fatty acid and must be refined. It is heated with steam in an open kettle to a temperature of 210-212° F. The steam is shut off, the excess water is allowed to settle and is then drawn off from the bottom of the kettle. Enough caustic soda solution is added to neutralize completely the free fatty acids. The strength of the caustic solution will vary with the percentage of fatty acids being removed. For low fatty acid content, 8° Baumé is effective.

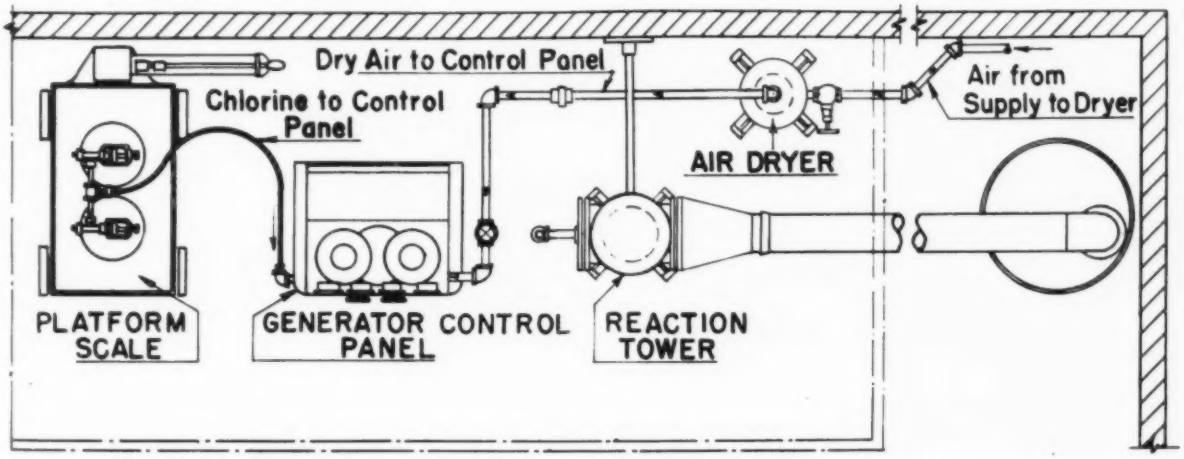
The soap stock settles to the bottom of the tank and is removed. The refined tallow is washed with hot water and allowed to settle over night. Next morning any remaining soap solution is drawn off from the bottom. This treatment improves the tallow, in this plant, from 19-21 F.A.C. to 13-15 F.A.C.

This refining step is followed by the acid-chlorite process, in which the refined tallow is heated with steam up to a temperature of 210-212° F. Agitation with steam is continued. One pound of technical sodium chlorite per 1,000 pounds of tallow is added. Then portions of a 20% aqueous solution of sulfuric acid are poured in at the top of the kettle until the water layer, which is equivalent to 10% of the weight of the tallow in the kettle, shows a pH of 4 or less. Bromphenol blue (available in paper strips or in solution) is used as a convenient end-point indicator. When sufficient sulfuric acid has been added to activate all of the sodium chlorite in the kettle, the color of the indicator changes from purple to yellow.



ELEVATION

CHLORINE DIOXIDE GENERATOR EQUIPMENT LAYOUT



PLAN

After the pH value of 4 has been reached, steam agitation is continued for half an hour. The water is again checked for pH, and a check on the bleaching power of the water layer is also made, starch-iodide paper being used for this purpose. In most cases the desired effect has been reached at this point.

The steam is then shut off, and small amounts of a weak caustic soda solution (8° Baumé) are added to bring the pH up to about 8. It is necessary to make the solution alkaline at this point in order to prevent reversion, especially as a result of the action of acid on the shell of the tank car during shipment. The addition of dilute caustic increases the water content of the kettle, and it is necessary to let the water settle to the bottom where it can be drawn off. The bleached tallow is dried and allowed to stand for a short time. Then any residual sludge may be readily re-

(*Turn to Page* 137)

ALUMINUM CLEANERS

By Milton A. Lesser

ALUMINUM is probably the most versatile of the lighter metals. Having further proved its adaptability during the war, there is every indication that aluminum and its alloys will find even greater and more diversified uses not only in industry, but in the home as well. Hand in hand with the extended applications will go an increased demand for suitable, safe and efficient cleaning materials.

As has been pointed out on many occasions, the importance of periodic and thorough cleaning of aluminum items cannot be over-emphasized. It is well recognized that the life of an aluminum vessel or piece of equipment can be greatly prolonged by thorough and regular cleaning of the surface with a suitable cleaner. However, the physical and chemical nature of aluminum requires that special consideration be given to the materials used for cleaning and polishing purposes.

Aluminum is a very soft metal readily scratched by many of the harder abrasives employed in household and similar scouring products. Even when alloyed with other metals to improve its durability, aluminum remains a relatively soft metal susceptible to abradant action. (1)

When formulating cleaners it is very necessary to remember that aluminum is rated as a chemically active metal. This is illustrated by the fact that when it is exposed to the atmosphere, aluminum forms a thin oxide film. Unlike other metals, this film does the metal no harm and, moreover, protects the metal beneath it from further oxidative changes. Since this natural film is very thin, a number of electrolytic processes have been developed to produce films of greater thickness. Since the aluminum oxide film thus formed is very hard, it serves to protect the metal against both corrosion and abrasion. This oxide coating may be tinted in various ways to yield the many colored aluminum products available on the market. (2, 3)

Even this tough film will not protect aluminum surfaces from the action of various chemicals, some of them commonly used in making household cleansers. As indicated by Akers and Mears, (4) aluminum and its alloys are rapidly attacked by caustic alkalies, by alkali carbonates, by the halogen acids, and by the halogens themselves. This attack is attributed to the solution or removal of the natural oxide films. The hard, tarnish-resistant electrolytically formed oxide coatings, while unaffected by many neutral chemical solutions, are readily attacked by uninhibited alkaline solutions. Hence in formulating aluminum cleaners, it is also necessary to take into consideration materials which will not attack aluminum oxide. Otherwise it is quite possible that not only will the aluminum be damaged, but that a very valuable finish may be ruined as well.

Because, during their processing, fabrication and finishing, aluminum products must be subjected to various cleaning procedures, industry has been able to assess the value of many materials employed for these purposes. (5, 6) Some of these substances may be harmful to the metal or the user when employed by unskilled people or without proper equipment. Hence, such materials are largely restricted to large-scale commercial methods. Many others, however, are quite safe and readily adaptable to the formulation of aluminum cleaners for household and general maintenance purposes.

Interesting and very indicative in this connection is the discussion of Akers and Mears (4) with regard to safe cleaners. In their opinion "safe" cleaners are those which can be used in any concentration upon bare or oxide-coated surfaces without injury to the surface. In this category belong such organic solvents as toluene, naptha and kerosene. Certain stabilized solvents of the chlorinated hydrocarbon type, and even aqueous solutions of ordinary soaps or alkaline detergents, like soda ash or trisodium phosphate, can often

Tests show frequent cleaning of household aluminum utensils with mild neutral soap will more than triple their life.

be placed in this safe class, provided they contain a sufficient amount of corrosion inhibitor. Aqueous or organic solvent solutions of many of the newer synthetic detergents or wetting agents or sulfonated oils can usually be rated as safe, especially if small amounts of a suitable inhibitor are added. Liquid waxes and light mineral oils are other materials which are generally considered safe.

"Harmful" cleaners, they feel, should be avoided unless they are of the kind that may be employed as "surface renewing" agents. This class of cleaners includes those materials which are intended to remove uniformly a small portion of the metal to expose a new and bright surface. Such cleaners may be either chemical solutions which etch or dissolve the surface layers, or abrasive pastes or powders which mechanically remove a part of the surface metal. In employing such materials it is essential to differentiate between those which are suitable for industrial purposes and those appropriate for making home-use products.

More detailed consideration of the various types or classes of materials used for cleaning aluminum should be indicative. Some thirty years ago, for example, soap was not included among materials for cleaning aluminum ware. This exclusion was probably justified on the grounds that many soaps then available contained appreciable amounts of free alkali, which is detrimental to the metal. (7) Obviously, this objection still holds with regard to soap powders and related products containing substantial quantities of sodium carbonate as an alkaline builder. (8)

Today, however, mild, neutral soap is considered one of the most effective aids for cleaning aluminum. Its efficacy has been demonstrated in a simple but illuminating experiment. (4) In this instance a corrosive water containing copper salts was boiled in two aluminum pans. One pan received no cleaning and became perforated after 324 hours. The other was cleaned with soap and steel wool after each four-hour boiling period and was still in good condition after 1,000 hours. In the light of such a demonstration, it is not surprising that a leading aluminum manufacturer's publication (9) should have the following statement. "One of the best methods of cleaning an aluminum surface is by the use of a mild soap and steel wool." Various soaps, some of them specially compounded for the purpose, are used in many cleaning steps during the fabrication and finishing of aluminum items. (7) Mild soaps are also satisfactory cleaners for oxide-coated aluminum products. (10) This familiar detergent is used quite extensively in aluminum cleaners for the household.

VARIOUS synthetic detergents are also suitable for use in connection with aluminum cleaners. Harris (6) rates the synthetic wetting agents among the best water-soluble neutral cleaners and states that they can be used equally well in alkaline or acid solutions. He reports that the use of some synthetic wetting agents and detergents with organic or inorganic acids results in improved cleaning and reduces corrosion. It is rather interesting that one foreign patent, (11) granted back in 1931, specified the inclusion of a sodium salt of sulfonated castor oil in a cleansing preparation particularly suited for aluminum.

Various organic solvents are used for cleaning aluminum, especially in industrial practices where a good degreasing action is desired without injury to the metal. Petroleum, hydrocarbon and coal tar solvents can be used on aluminum and its alloys, and in most cases they provide a satisfactorily clean surface. Chlorinated solvents can be used as long as no fine aluminum dust enters the solution and causes break down of the solvent to yield hydrochloric acid. (12)

A recent development has been the introduction of emulsifiable cleaners. According to Townsend, (12) such

cleaners are of two types. One class is generally composed of hydrocarbon-soluble emulsifiable material (e.g. triethanolamine oleate, sulfonated corn oil, etc.) added to a high flash-point naphtha or kerosene. The other type is produced by blending potassium oleate with kerosene and a blending agent such as butyl alcohol or cresylic acid. Up to 10 per cent of water can be added to either of these types to increase the emulsifying action. Since they are only slightly alkaline, emulsifiable cleaners are used in cleaning chemically active metals, including aluminum. Comparatively inexpensive, the solutions are non-explosive and cause less fire hazard than do petroleum solvents.

Alkaline compounds, which are so important in other cleansing preparations, are not recommended for aluminum. Solutions of sodium or potassium hydroxide rapidly attack aluminum and its alloys. Salts of sodium or potassium or any strong base and a weak acid, like sodium carbonate or trisodium phosphate, which hydrolyze in water to produce alkaline solutions are usually decidedly corrosive to aluminum. However, attack of aluminum by alkaline salt solutions can be reduced or even prevented by the use of an inhibitor like sodium silicate. (9) Thomas, (10) after noting the corrosive effects of several proprietary dishwashing compounds on aluminum utensils, recommended the inclusion of a high proportion of sodium metasilicate in such products.

Others have made similar observations. (6, 13, 14) Noteworthy is the number of patented aluminum cleaners containing silicates as corrosion inhibitors or as cleansing aids. (15-18) Silicates themselves are important aluminum cleaners and sodium silicate has been recommended (19) for this purpose because it shows less tendency to attack the metal than other alkalies. An interesting, though not especially typical silicate-containing cleaner for aluminum, tin, and zinc, is given in one patent (20) as follows:

	Parts
Trisodium phosphate	63.0
Sodium perborate	10.0
Sodium silicate	25.0
Magnesium sulfate	2.0

IT is sometimes desirable that aluminum surfaces be treated to expose a fresh clean surface or etched to remove traces of foreign metals. Nitric acid or combinations of nitric acid and hydrofluoric acid are used for this purpose. Solutions of sulfuric acid and sodium fluoride have also been employed in surface-renewing, as have preparations containing phosphoric acid. (4) One patented procedure (21) combines phosphoric acid with an alkali metal fluoride to make compositions for cleaning aluminum surfaces. Of course, by their very nature, such preparations are limited to industrial application.

Organic acids may be used occasionally as aluminum cleaners. A patented water-soluble cleansing composition consists of tartaric acid or similar acid mixed with about one per cent of sodium fluoride. (22)

As is the case with other types of metal cleaners, abrasives play an important role in many products used on aluminum. Since it is a soft metal, special consideration must be given to the kind of grinding agent employed. Abrasives such as soft silica, tripoli and fine emery are standard materials in the commercial methods for polishing aluminum products. Mild abrasives, like diatomaceous earth or calcium carbonate, are suitable for household aluminum cleaners, but the harder, coarser abrasives found in many scouring powders and pastes are liable to scratch the metal. A number of polishes based on the abrasive action of silica have been tried. According to Tyler, (23) such scouring agents were unsatisfactory because silica is too hard for aluminum; scratching the surface and failing to give a polish.

Steel wool deserves more than passing mention. It is a most satisfactory cleaning and polishing agent for aluminum surfaces, especially when properly lubricated. In industry, steel wool lubricated with soapy water or a greaseless polishing compound is used to produce a very satisfactory satin finish on aluminum. The same principle is used in the household. Although ordinary mild soap acts very efficiently, special preparations are sometimes offered for use with pads of steel wool. Such a product has been described (1) as consisting of:

	Per cent
Sodium oleate soap	7.0
Stearic acid	0.2
Water	92.8

In this composition, the small quantity of fatty acid is said to leave a sheen on the metal that has been cleaned by the soap and scoured and polished by the steel wool.

WITH these data as a background, it is possible to go into a more detailed consideration of the formulation of aluminum cleaners suitable for household and maintenance purposes. For the sake of convenience, such products may be classed as powders, cakes or blocks, pastes, and liquid preparations.

Cleaners in powder form may consist of simple mixtures of abrasives, with or without various proportions of soap or other detergents. Waxes or powdered fatty materials may be included to provide a sheen or polished effect for the cleaned metal surface. More complex compositions may incorporate alkalies and other presumably helpful agents. An aluminum cleansing powder may consist solely of a single abrasive material. For example, a patented (24) cleaning composition for use on aluminum ware, consists solely of crushed limestone. The unique feature of this product is that the particles are proportioned according to their degree of sieve-fineness.

Very commonly, however, several abrasive materials are mixed to form a more rounded or more pleasing product, as in the following example: (25)

	Per cent
Magnesium oxide	30.0
Whiting	30.0
Red iron oxide	40.0

The same source provides another, slightly more complex powder for fine polishing purposes:

	Parts
Tartaric acid, powdered	5.0
Magnesium oxide	30.0
Calcium carbonate, precipitated	40.0
White kieselguhr, calcined	30.0

Soap is a useful inclusion in powdered aluminum cleaners because its detergent and wetting action aug-

ments the mechanical effect of the abrasive. One product, claimed to clean and polish without scratching when applied with a wet cloth, has been found (1) to consist of:

	Per cent
Dolomitic limestone	85.5
Soda soap	13.0
Sodium silicate	1.5

The use of a synthetic wetting agent is illustrated in the following simple formula for a non-alkaline scouring powder for aluminum:

	Per cent
Aerosol OT-C	1.0
Feldspar (200 mesh)	99.0

It is said that, when used on a damp cloth, this powder will wet surfaces instantly, will quickly remove dirt and tarnish, and is easily rinsed in water. The powder may also serve as a general household cleaner for enamel ware, porcelain, tile and such. ("Aerosol OT-C" is a product of American Cyanamid and Chemical Corp., New York.)

An aluminum polishing powder containing a sheen-imparting material may be made along the following lines: (25)

	Per cent
Stearic acid or paraffin wax (powdered)	10.0
Magnesium oxide	40.0
Calcium carbonate, precipi-	
Calcium carbonate, precipitated	30.0
Red iron oxide	20.0

Another aluminum cleaning powder, described in an older patent, (26) is quite different from the more modern, fairly simple compositions. Made with several alkalies, it consists of:

	Parts
Powdered pumice	25
Powdered calcined silica	25
Sodium sesqui carbonate	25
Trisodium phosphate	10
Powdered soap	10
Ammonium chloride	5

As with other types of metal and household cleaners, products for aluminum can be provided as cakes or blocks. Such items may be made by compressing mild abrasives with a suitable binder. Soaps and other useful adjuncts may be included. A direct approach to such a cake product is provided in the following formula:

	Parts
Diglycol stearate	10.0
Stearic acid	20.0
Tripoli	200.0

Mix hot very thoroughly and pass through a sieve. The resulting fatty powder may be compressed into blocks or cakes.

Aluminum cleaners in paste form are quite popular and convenient to use. In addition to the usual abrasive and detergent, with or without a sheen-imparting material, paste products may take advantage of the grease cutting and dissolving action of various solvents. Such a well rounded, tinted product, cited by Small, (1) can be made from:

	Per cent
Iron oxide pigment	1.0
Water	1.0
Ammonium stearate	5.0
Stearic acid	4.0
Petroleum naphtha	36.0
Tripoli	53.0

Considerably simpler, but also much more old-fashioned is an aluminum cleaner and polish that combines a solvent and abrasive effect. This paste is made from:

	Parts
Tallow	4.0
Turpentine	2.0
Emery flour	1.0

The turpentine is added to the melted tallow and the emery is stirred in. To be applied with a polishing brush or rag, this polish is said (27) to provide a clean, lustrous surface.

Another variation of paste type polishes is offered (25) in the following formula made with water as the liquid component:

	Parts
Fine chalk	60.0
Clay	20.0
Magnesium carbonate	10.0
Tartaric acid	10.0
Dextrin	1.0
Diglycol stearate	1.0
Water	15.0

From the patent literature (28) comes the following rather general purpose cleaner. Suitable for aluminum, this cream is also recommended for cleaning porcelain, enamel, silver and the like:

	Parts
Soft soap	5.0
Whiting	24.0
Water	12.0

As already indicated, liquid preparations are sometimes designed for use with steel wool or similar material. These may be simple solutions containing soap and other adjuncts or somewhat more elaborate products, such as the following (29) made with solvents and in which the soap is formed *in situ*:

Potassium hydroxide	40.0 Gm.
Water	900.0 cc
Red oil (com. oleic acid)	150.0 cc.
Alcohol	25.0 cc.
Ethylene dichloride	50.0 cc.

Add the potassium hydroxide to the water, warm to 75°C. and slowly stir in the red oil until completely dissolved. Allow to cool and incorporate the alcohol and ethylene dichloride. To use, dip a piece of fine steel wool or rough cloth into the liquid and rub on the aluminum, then wash the surface with hot water and dry.

Including a mild abrasive in a liquid preparation obviates the need for steel wool or the like. Unless a suspending agent is added, however, it is necessary to shake the mixture prior to use in order to redisperse the abrasive. This is the case in an aluminum cleaner and polish recommended by Belanger, (30) which consists of:

Trisodium phosphate	2 oz.
Finest tripoli	1 lb.
Water	6 pt.
Sodium silicate	½ pt.

The patent literature also provides its complement of liquid preparations for cleaning aluminum. One such solution, which is used hot, employs from 6 to 25 parts of an aluminum salt such as potassium, sodium or ammonium alum, 0.2 to 5 parts of a detergent, like sulfonated castor oil, and about 100 parts of water. (31) Another, more recent patent (32) calls for the use of an aqueous solution containing sodium salts of orthophosphoric acid and silicic acid in specified ratios.

With the extension of aluminum's utility, more specialized products have been developed to meet specific needs. For example, liquids or pastes have been devised for removing beer scale, milk scale and such from equipment made of aluminum or its alloys. (33) The extension of aluminum

(*Turn to Page* 169)

TRADE NEWS. . . .

Peterson Elected

The Utility Co., Inc., New York, manufacturers of "Gre-Solvent," announced on July 30th the election of David L. Peterson (grandson of the late David G. Holmes), as secretary and assistant treasurer. The other officers continuing in office are Marion Holmes, president, and David C. Stutts, executive vice-president.

Hovell Joins Adv. Cos.

Advanced Cosmetics, Inc., New York, private brand manufacturers, report that Victor E. Hovell recently joined the company as production manager in charge of operations at the Long Island City plant. During the war, Mr. Hovell was superintendent in charge of TNT production at Keystone Ordnance Works, operated for the Army by Fraser Brace Engineering Co., Meadville, Pa. Previously, he was plant supervisor for TNT production at Triton Chemical Co., and was at one time on the sales staff of Stanco Distributors.

New Leather Cleaner

"Leather Lather," a colorless leather cleaning liquid developed by Link Laboratories, Kansas City, contains no wax or petroleum derivative and therefore is said to leave no grease or oil on the surface of the object cleaned. It is claimed to remove stains and to restore original color. The active ingredient is a polymerization agent which combines with the dirt. The liquid will be distributed in small bottles and gallon jugs through chemical, drug, and hardware jobbers.

35 Years with Davies-Young

E. G. Eckerman, vice-president in charge of sales of Davies-Young Soap Co., Dayton, is celebrating his thirty-fifth anniversary with the company. Mr. Eckerman started with Davies-Young Co. in 1911 as a salesman with headquarters in Cleveland, covering all of Ohio and western New York state. He covered the laundry and dry cleaning plants as well as handling

E. G. ECKERMAN

sanitary supply soaps and beauty and barber supply soaps. At the end of 19 years, he was brought to the factory to take charge of sales.

Two More Ceilings Lifted

Suspension of price control over cleaning fluids based on sodium alkyl benzene sulfonate packaged for household use, and over beeswax compositions containing 60 per cent or more beeswax was announced effective August 22nd by the Office of Price Administration, Washington, D. C.

Barber Institute Meets

Soaps were conspicuously absent from displays at the Beauty and Barber Shop Institute's two-day meeting in Chicago last month. Nearly 100 other toilet preparations were, however, exhibited by about a score of manufacturers or distributors, with emphasis on toiletries for men. Within the past twelve years, the number of toilet preparations for men has increased from ten to over 400, according to a Chicago manufacturer's agent, Murray Werker.

Advances at Hershey

The soap and extraction division of the Hershey Estates, Hershey, Pa., announced the following changes in the organization were effected in mid-August: Cedric Blanchard, formerly superintendent of the soap plant, was advanced to operating manager. Harold Brewer, formerly superintendent of the extraction branch, was moved up to operating manager of that branch. John McCleaf was promoted to sales manager for the entire division. Harold Hershey recently resigned as sales manager of the soap branch to become assistant manager of the milk products division of the Hershey Chocolate Corporation. The soap and extraction division of Hershey Estates manufactures "Hershey's Cocoa Butter Toilet Soap," "Hershey's Cocoa Butter Rose Garden Soap," and "Hershey's Cocoa Butter Shaving Soap" in bowls. A new product was recently announced by T. R. Banks, division manager. It is a soil builder and conditioner for lawns and gardens.

Alrosene PD New Detergent

A new dry synthetic detergent introduced recently by Alrose Chemical Co., Cranston, R. I., is claimed to have good possibilities for household and textile use. The active ingredient is a modified alcohol sulfate. The product, known as, "Alrosene PD," contains 15 per cent of active ingredient and 85 per cent of inorganic salts. A 1 per cent solution has a surface tension of 30.5 dynes per cm. at 25°C. The product is a good detergent on both wool and cotton in neutral solution. A 1 per cent solution at 45°C. produces 6 volumes of foam on agitating, with good foam stability. This suggests applications in laundering, upholstery- and rug-cleaning, general household cleaning etc. The product is resistant to mild acids and to calcium hardness, and may be mixed with soap powder or other cleaners.

No Soap Industry Price Relief—O.P.A. Rules

THE OPA soap and glycerine Industry Advisory Committee met at the Hotel Stevens, Chicago, August 16 to discuss ways and means of solving the problems of soap supply and pricing created by the temporary termination of OPA controls a few months back. The committee elected officers as follows: T. J. Wood, Procter & Gamble Co., chairman; E. A. Moss, Swift & Co., vice-chairman; Roscoe Edlund, Association of American Soap and Glycerine Producers, secretary.

The meeting was presided over by G. W. Strasser, price executive for the rubber, chemicals and drugs branch of OPA, who indicated that no immediate industry-wide relief could be granted to soap makers generally. In order for an industry to be eligible for industry-wide relief, he pointed out, a substantial share of the total output of the product in question must be in the hands of firms the major share of whose incomes comes from sales of that product alone. He reminded the committee members that in the case of the soap industry the bulk of production is in the hands of firms who make not only soap but also shortening, meat products, cosmetics, toilet preparations, etc. They are thus not classed by the OPA as an "industry" and so are not eligible for "industry standards treatment." Another avenue open to them, he indicated, would be to petition for price relief under Section 6 of the new OPA act. Under this approach it would be necessary for the advisory committee to collect and submit cost data. However, a delay will be necessary in starting any such approach as the OPA has not as yet issued instruction for procedure under amendment 6.

Industry representatives have pointed out that they cannot sell, at reimposed price ceilings, soaps made from high cost raw materials purchased during the period of temporary OPA ceiling suspensions. Substantial quantities of tallow were reported purchased in the neighborhood of 13c a pound during the month when OPA controls were allowed to lapse. This high-priced tallow soapers are unwilling to make up into soaps to sell at ceiling prices. Neither are they willing to use their fat stocks in the manufacture of low-profit items, which consequently are currently off the market. It was this impasse which it was hoped might be corrected by action initiated at the Chicago meeting, but apparently no industry-wide relief can be expected.

The OPA has pointed out, however, that the way is still open, as it has been since the original passage of the price control act, for individual appeals for price relief in hardship cases, under amendment 5 to MPR 391. Appeals for price relief must be accompanied by detailed figures including the following: sales of the particular soap on which price relief is needed in relation to overall sales, cost of the product including raw materials, labor, average freight, indirect factory cost and general sales and administrative expense. On the last two items the OPA takes either the current figure, or 1942 figures, whichever is lower.

The amount of the price adjustment which they may allow depends on the company's overall current earnings as compared with earnings in the base period, 1936-1939. If earnings are currently in excess of the base period rate, all the OPA will allow on the product is direct factory cost. If earnings are the same as the 36-39 average, total cost may be allowed, while if earnings are currently below the 36-39 rate, total cost plus a reasonable margin of profit is permitted. No price increase will be allowed, however, which will raise the manufacturers price above the levels at which competitors are selling comparable products.

Other members of the Soap and Glycerine Industry Advisory Committee, in addition to the officers listed above, are: Russell Young, Davies-Young Soap Co.; H. Dock, M. Werk Co.; William K. Veale, Lever Bros.; Gordon Fulton, Beach Soap Co.; E. B. Hurlburt, J. B. Williams Co.; N. S. Dahl, John T. Stanley Co.; O. M. Burke, Manhattan Soap Co.; E. H. Little, Colgate-Palmolive-Peet Co.; V. Levinson, J. Eavenson & Sons, Div. Wilson & Co.; C. G. Fox, Fels & Co.; D. M. Flick, Armour & Co.; Fred Larrabee, Iowa Soap Co.; and E. M. Finehout, Los Angeles Soap Co.

Veg. Oil & Tallow Ceilings

Ceiling prices on crude vegetable oils and inedible animal fats were re-established by OPA effective Aug. 23. The prices are at June 30 levels. Prices on processed products from these oils were increased to reflect removal of processors' subsidies. OPA also stated ceilings for byproduct feeds, etc., were to be established.

Copra, Oil Ceilings Up

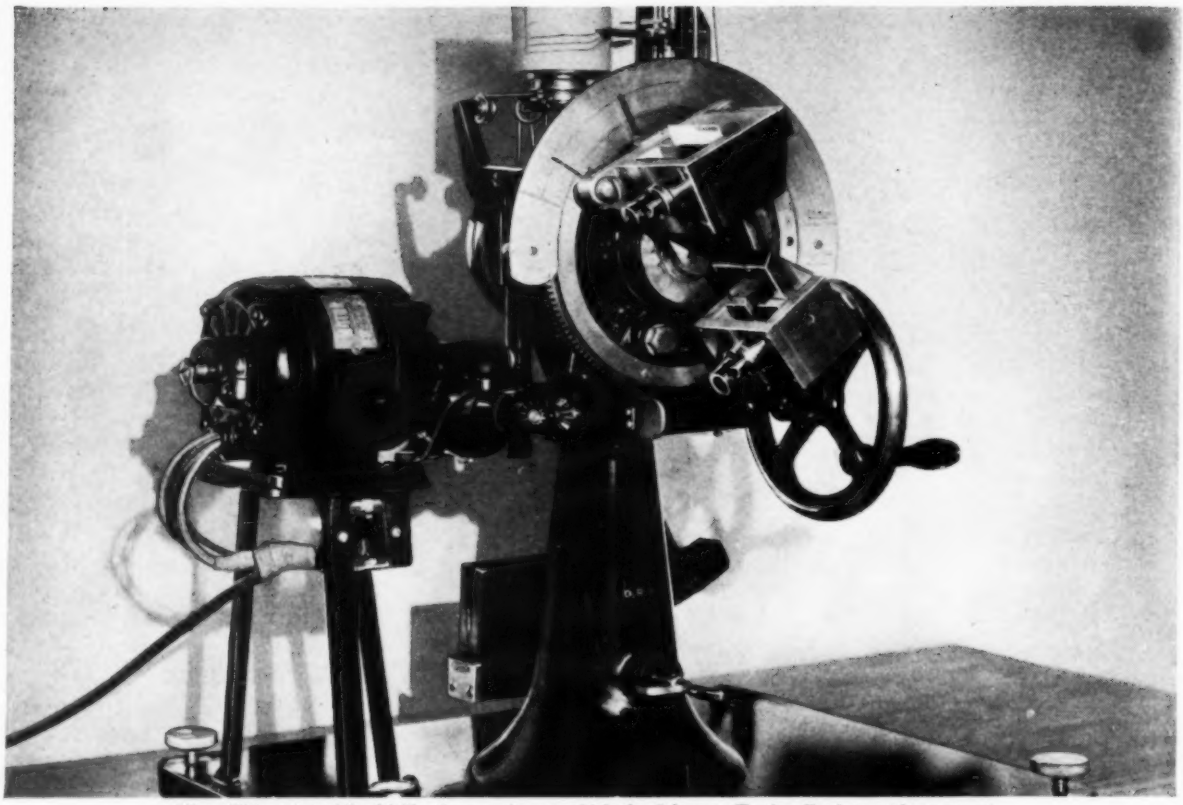
Increases in the maximum import prices of copra and crude coconut oil shipped from the Philippine Islands were announced by OPA August 26th. Copra increased from $109.50 to $110.25 per short ton c.i.f. Pacific coast ports, and from $114.75 to $115.50 per short ton, c.i.f. Gulf or Atlantic coast ports. Coconut oil increased from $0.08 to $.0806 a pound, c.i.f., Pacific ports, and from $0.0835 a pound, c.i.f., Atlantic ports to $0.0841 a pound.

More Coconut for Soapers

Soap makers have just been allocated an additional 50,000,000 lbs. of coconut oil by the U. S. Department of Agriculture.

BIMS Golf at Winged Foot

The BIMS of New York held their August golf tournament on Tuesday, August 13th at the Winged Foot Golf Club, Mamaroneck, New York. About 100 members and guests turned out. Among the prize winners were James McInnes, Jr., Commercial Solvents Corp.; Walter A. Conklin, Evans Chemetics, Inc.; C. W. Allen, Albert Verley Co.; Harry W. Heister, George Lueders & Co.; Ray F. Ougheltree, Bri-Test Products Corp.; and George P. Dunn, Smith & Nichols, Inc.



"How stiff is a piece of tin plate?"—the question on which the Schopper Testing Equipment is an expert.

FOUR "WISE GUYS" OF THE LABORATORY

The strange-looking machines on this page may not know all the answers about tin plate.

But, by and large, they are extra bright on most aspects of this subject. And they play an important part in the quality-control operations at Canco Central Research Laboratories at Maywood, Illinois.

Quality control is something in which American Can takes a deep interest. For we are obsessed with the idea that you can't be too sure about container materials.

So, tin plate, adhesives, paper, solder, enamels, and sealing compounds—all components of the containers we make—get a going-over at Maywood, which results in a wide margin of safety for the products our customers buy.

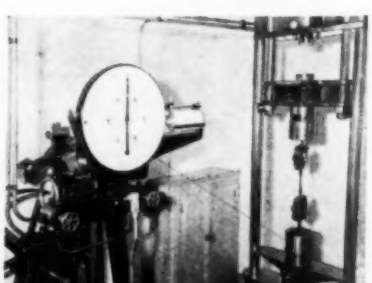
It may be once in a business lifetime that these wide margins are exceeded and the container fails. Again, it may be never. But American Can serves its customers on the basis that *before—not after*—the horse is stolen is the time to put the padlock on the barn door.

CANCO **AMERICAN CAN COMPANY**
New York · Chicago · San Francisco

No other container protects like the can

This is a Cup Tester. Its specialty is the question, "What are the drawing properties of tin plate?"

Hardness of tin plate is the Rockwell Tester's meat. It gives the exact, reliable answer.



This is an Amsler Tester. It tests samples by tension or by compression. It tells us how strong tin plate is.

Colgate Financial Report

The semi-yearly financial report recently issued by the Colgate-Palmolive-Peet Co., New York, showed net earnings of $6,311,156 or $3.10 a common share, or almost double the $3,182,547 or $1.49 a share earned in the corresponding six months of last year. Domestic sales for the current year's period were $72,839,504 compared with $70,831,725 last year. In addition, foreign subsidiaries included had sales of $19,263,527, making a world-wide total of $92,103,031, against $89,316,197 for the 1945 period. Domestic operating expenses were $18,771,860, compared with $14,659,140, while income taxes amounted to $3,656,982, a decrease of $2,143,018 from $5,800,000 a year ago.

Directors have authorized a program of expansion and modernization of buildings and equipment at an estimated cost of $25,000,000. This program is expected to be completed within three years.

Monsanto Sudless Soap

Monsanto Chemical Co., St. Louis, announced on August first a new type sudless synthetic detergent, "Sterox." Developed by the company's central research laboratories at Dayton, Ohio, primarily for use in automatic home laundry machines, the detergent is said to cleanse clothes as easily in hard as in soft water with the formation of no objectionable curds. "Sterox," now being made by Monsanto's phosphate division, is termed a non-ionic, or non-curd-forming detergent. Non-ionic means in this case that it will not combine with metallic substances found in tap water to form insoluble curds. The company also forecasts industrial uses of the product in textile, metal cleaning, and commercial laundry fields.

Bella to Visit U. S.

L. Bella, chairman and managing director of Kenrosa, Ltd., manufacturers of hair fixatives, other hair preparations, and men's toiletries, is due to arrive in New York August 25th for a visit until the end of September. He may be contacted in care of Metal Products Co., 100 Boylston St., Boston 16, Mass.

The new Shulton old spice bath set package is convenient both for the customer and for window or counter display.

New Shulton Bath Set

The Old Spice Bath Set, a new package by Shulton, Inc., New York, creators of Early American Old Spice Toiletries, was recently announced by the company as another useful combination of bathing supplies in an attractive box. Arranged in the box, which opens like a book, are two bath sticks, two cakes of toilet soap and one four-ounce bottle of toilet water. All of these items are regular size, the sticks the same as those in the bath sticks package. Enough salts for three baths are contained in each stick. The bath set package is parchment-colored with decorative motifs in green, blue, red and yellow. The package will be marketed at drug and department stores after October 15th.

Walters Resigns OPA Post

Rae E. Walters has resigned his position as administrator in charge of the Sixth Regional office of the Office of Price Administration at Chicago and returned to his Harlan, Ia., home where he will resume his business activities as proprietor of the Harlan Rendering Co. and other enterprises. Mr. Walters volunteered for government service in 1942 and, since January, 1944, has been stationed in Chicago. He has refused all compensation.

Cleaner and Car Wash

Developed and tested by the Ethyl Corporation of Detroit, Mich., a new multi-purpose household cleaner and car wash is available. It contains a synthetic detergent derived from petroleum, and is sold in concentrated liquid form under the name of "Ethyl Cleaner." It is recommended for various home uses including washing painted walls, windows, enameled finishes, and woodwork, and for cleaning all surfaces of an automobile.

U. S. Gets Dutch Copra

The Netherlands East Indies exportable surplus of copra has been made available to the United States through an agreement for its purchase signed by the Commodity Credit Corp., it was recently reported. The agreement will be in force for one year, beginning September 1.

The United States will advance $15,000,000 to the Dutch Government which it will use to buy trade goods and other supplies from the United States. The Dutch will repay with copra.

The Netherlands Indies Government estimates that a minimum of 300,000 long tons of copra can be made available to the world oil supply during the next 12 months.

Under the terms of the copra purchase agreement with the Netherlands East Indies the price of copra imported into the United States will be the same as that announced in connection with the Philippine copra agreement.

U. S. Gets All P. I. Copra

Under the terms of the copra purchase agreement signed August 7th in Manila, the Philippine Government has agreed to sell the entire exportable surplus of copra and coconut oil to the Commodity Credit Corporation or its designee for one year beginning July 1, 1946. The price of copra will be $103.50 per long ton, f.o.b. ocean carrier. Price of coconut oil will be 7⅛ cents per pound f.o.b. Philippine ports. This will allow importation of copra and coconut oil within the existing price ceilings set by OPA.

In addition the Philippine Government has agreed not to place any restrictions upon the production or export of copra to the U. S. All purchases for foreign claimants will be handled by the United States and the Philippine Government will issue export licenses only to the U. S. or its designee. Purchases for foreign claimants with International Emergency Food Council allocations will be made by the Fats and Oils Branch of the Production and Marketing Administration through normal commercial channels. All copra imported for use in the U. S. will be purchased by private importers, with control through import licenses.

Shipments of copra and coconut oil in terms of copra have risen steadily since January, reaching a high of about 60,000 tons in July, almost equaling prewar tonnages. The remarkable recovery of the Philippine copra industry is due particularly to the close co-operation between the two nations for the purpose of increasing the world's short supply of fats and oils. The United States is furnishing inter-island boats to carry copra to market, incentive goods such as textiles to encourage copra collections, and equipment to aid in harvesting and drying copra. Much of the groundwork resulting in increased shipments was due to the efforts of the Copra Export Management Corporation. Before the expiration of the agreement on July 1, 1947, the U. S. Dept. Agriculture expects shipments to be near the prewar levels of 1935-39.

Inedibles Retain Ceiling

Reports that the Office of Price Administration is contemplating increasing ceiling prices of inedible fats over the June 30 ceilings were denied in a statement made by the price agency on August 6th. These reports have been circulated throughout trade channels, OPA said, and have led sellers to withhold their products from the market. OPA declared that the revival of price controls on July 25th automatically put back controls on inedible fats at June 30 ceilings. The agency emphasized that no change in these ceilings is in prospect.

They further stated on August 13th that decontrol of soybean and cottonseed oils when sold for industrial purposes is not a precedent for decontrol of inedible tallow and grease. Amendment 45 which was issued to OPA Regulation S. O. 132, decontrolled until August 20th, soybean and cottonseed oils when sold to industrial users for inedible purposes. These same oils when sold for edible purposes were also decontrolled by the Price Control Extension Act until that same date. OPA officials state that this action in the case of soybean and cottonseed oils is not to be interpreted as a precedent for decontrol of inedible tallow and grease, which it is the announced intention of OPA to continue under control at June 30 ceiling prices. They pointed out that in the case of cottonseed and soybean oils exactly the same grades are sold for edible and inedible uses—they are the same product, and in OPA's opinion should be treated exactly alike.

The exact opposite is true of inedible tallow and grease. They are different products from edible tallow, and OPA regulations will treat the two products differently. Edible tallow was decontrolled, of course, until Aug. 20th by the price control act, but inedible tallow and grease remain under OPA ceilings.

Alympol Co. Now Nu-Brite

Alympol Soap and Chemical Co., Taunton, Mass., reports a change in the company name to Nu-Brite Chemical Co. The change was effective August 1st.

WFO 67 Still in Effect

In response to numerous inquiries, the Department of Agriculture, Washington, announced recently that there is no intention at present to suspend or revoke provisions of War Food Order 67 limiting the inventories of producers of inedible tallow and grease to one-twelfth of their production during the last six months of 1944. The Department pointed out that in view of the difficulty some users are experiencing at present in obtaining tallow and grease, the effect of the order in prohibiting the building up of excessive inventories by producers of tallow or grease is now particularly timely. In addition to limiting producers' inventories, War Food Order 67 limits dealers' inventories to one-twelfth of their deliveries during the last six months of 1944 and also limits inventories of manufacturer-users of inedible tallow or grease to one third of their consumption during the last six months of 1944.

Ideal Chem. Head Retires

Lloyd E. Grant, president of the Ideal Chemical Co., Scranton, retired August 15th. His place was taken by Dr. Curt Hoenigsberg former general manager of the company. In August, the company relocated in a new building at 630 Kressler Ct., Scranton, and closed down production until September 1st in order to carry out remodeling.

Evans Depilatories Sold

Sharp & Shearer, Reading, Pa., have announced the purchase of Evans depilatory cream and depilatory powder. The purchase included the complete manufacturing machinery for the two products. Production will be started immediately and the same outlets will be used for both the cream and the powder as in the past.

P. & G. Profits Higher

Procter and Gamble Co., Cincinnati, recently reported net profits of $21,263,669 or $3.29 a share, in the fiscal year ending June 30. The year before, profits were $19,512,314, or $2.95 a share.

WFO 42b Being Revised

THE Committee on Small Business of the U. S. House of Representatives issued a report August 1, recommending extensive revision of WFO 42b, in line with a number of suggestions made at open hearings which were held by the committee in Washington, April 3, 4 and 5 and April 15, 1946. The committee had been empowered to investigate charges that the provisions of WFO 42b were discriminatory, that the regulation had been unfairly administered to the detriment of small soap manufacturers, and that adequate supplies of fats and oils existed to permit removal of quota controls.

At the Washington hearings (reported in the April and May issue of *Soap and Sanitary Chemicals*), testimony was taken from a number of soap makers, as well as others concerned with fat and oil supplies. Some industry representatives seemed to favor some type of revision of quota base periods, but few recommended outright repeal. Hon. Estes Kefauver of Tennessee presided at the hearings.

Among the soap makers who testified at the hearings were E. O. Gillam, Gillam Soap Works, Fort Worth, Texas; A. L. Kamen, Kamen Soap Products, Inc., Barberton, Ohio; Carter Poland, Poland Soap Works, Anniston, Ala.; E. W. Wilson of Armour & Co., Chicago, and Herbert Kranich, of Kranich Soap Co., Brooklyn.

The recommendations of the committee are summarized below. They suggested that quota controls be retained until the supply of fats and oils more nearly equals demand, but recommend that soap makers be given a choice between alternative base periods, 1940-41 or 1944-45, whichever is most advantageous. They further recommend an additional ex-quota bonus to every soap maker not exceeding 60,000 lbs. of fats and oils per calendar quarter. Amendment of WFO 42b is also recommended to permit distribution of coconut oil to all soap makers in proportion to their quotas, regardless of whether or not they used coconut oil during the base period.

Word was received September 9 that the USDA was acting immediately to release coconut oil to the entire industry, as recommended by the house committee. An unofficial report was also noted that the balance of the recommendations would be given immediate attention.

Recommendations

The Committee on Small Business recommends that the Department of Agriculture should take immediate steps to preserve and strengthen the competitive position of small firms engaged in the manufacture of soap and soap products by the following actions pertaining to the controls provided under War Food Order 42b:

1. War Food Order 42b should be retained in effect, with the modifications suggested below, until such time as supplies of inedible fats and oils more nearly equal demand.

2. In the computation of base period usage of fats and oils firms should be given the alternative of using the period 1940-41 or 1944-45, whichever is the most advantageous.

3. The percentage quotas of inedible fats and oils for the manufacture of soap and soap products should be reduced to all manufacturers in an amount sufficient to produce a quantity of fats and oils as a bonus equal to the requirements of the following proposed amendments to War Food Order 42b:

(a) That section 1460.33 (b) (2) to be amended so as to read:

Any manufacturer who has used his quotas for all classes of soap for any calendar quarter may use an additional amount of fats and oils up to his base period usage in the aggregate for soap in such calendar quarter in addition to his quotas, but, in no event, shall this bonus exceed 60,000 pounds of fats and oils per calendar quarter * * *

4. All exempt uses should be included in current use computations and all other uses of inedible fats and oils should be controlled on a basis equal to that applicable to that used in the manufacture of soap and soap products.

5. The present policy being followed by the Department of Agriculture to assist hardship cases should be continued.

6. The Department of Agriculture should immediately amend War Food Order 42b so as to permit the distribution of coconut and other imported oils to all applicants who used fats and oils for soap and soap products manufacturing during the base period and this should be done in proportion to their use of all fats and oils during that period.

ANDREW P. FEDERLINE

As we go to press word reaches us that the connection of Andrew P. Federline with the Association of American Soap and Glycerine Producers has been terminated. Mr. Federline had been assistant manager of the association, as well as secretary of the Potash Soap Division which he helped to organize. He had been a member of the association staff since 1928, was widely known and esteemed in the industry, and had contributed largely to the excellent bulletin service supplied by the association to members in recent years.

Prior to joining the soap association, Mr. Federline was head of the legal, research and legislative work at the national headquarters of the American Automobile Association in Washington. He had also at one time served as a law clerk to the late Justice McReynolds of the U. S. Supreme Court.

Mr. Federline has not as yet announced his future plans, but it is believed that he will shortly open a law office in Washington. No announcement has been made by the association as to a possible successor to Mr. Federline.

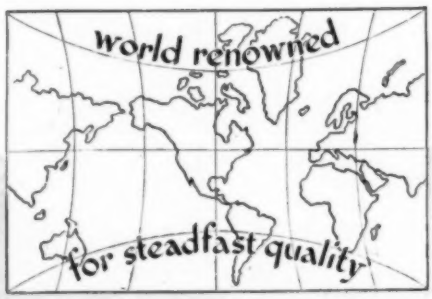
E. J. Stoffregen Dies

Word has come from James Counts Soap Co., St. Louis, that Edward J. Stoffregen, co-partner of the concern for the past eighteen years died suddenly on August 24th at the age of sixty. Mr. Stoffregen was employed by Wm. Waltke Soap Co., for 27 years prior to joining Counts.

schimmel

OSMODORS

To the perfume chemist Osmodors present a challenge and supply a need. An infinite variety of scents can be fashioned from these strong, lasting bases which lend themselves so admirably to combination and eliminate months of experimentation. Precise in basic characteristics, like all Schimmel products, they await only ingenuity in blending.



schimmel & co., inc.

601 West 26th Street, New York, 1, N. Y.

CHICAGO—CINCINNATI—ST. LOUIS—DALLAS—LOS ANGELES—SAN FRANCISCO

NEW TRADE MARKS

The following trade-marks were published in the August issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

JUNIOR DUDES—This in upper case, extra black, bold letters for detergent preparation. Filed Aug. 24, 1945 by Stephen Riley Co., Los Angeles. Claims use since Feb. 28, 1945.

REPCO—This in upper case, bold, stencil letters for soap substitute. Filed Dec. 18, 1945 by Refined Products Co., Lyndhurst, N. J. Claims use since Sept. 1, 1945.

REPCOLENE—This in upper case, extra bold, stencil letters for soap substitute. Filed Dec. 18, 1945 by Refined Products Co., Lyndhurst, N. J. Claims use since Sept. 1, 1945.

REPCO PAR—This in upper case, bold, stencil letters for soap substitute. Filed Dec. 18, 1945 by Refined Products Co., Lyndhurst, N. J. Claims use since Sept. 1, 1945.

"ALOHA"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"AMBUSH"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"BRAZEN"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"CANOE"—This in upper case, bold, black letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"EMIR"—This in upper case, extra bold letters for toilet soaps. Filed Jan. 19, 1945 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"LENIA"—This in upper case, extra bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"PRIORITE"—This in upper case, extra bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

BED BUG DOOM—This in upper and lower case, extra bold, black letters, one word above the other for insecticide. Filed Oct. 11, 1945 by Edgar A. Murray Co., Detroit. Claims use since 1898.

MOTH DOOM—This in upper and lower case, extra bold, black letters for insecticide. Filed Oct. 11, 1945 by Edgar A. Murray Co., Detroit. Claims use since 1898.

NEPTOX—This in upper case, extra bold letters for insecticide. Filed Dec. 22, 1945 by Northeastern Products, Inc., Boston. Claims use since Dec. 6, 1945.

BUGAMIST—This in upper case, outline letters within a lightly ruled box that is convex and concave at top and bottom to parallel the descent and ascent of the letters which grow smaller toward the middle of the word and grow larger at the extremities, for insecticide. Filed Feb. 21, 1946 by Sanitary and Pest Control Co., Cincinnati. Claims use since July 1, 1944.

TARGET—This in upper and lower case, bold, script letters across the face of a target-like background for self-polishing waxes for floors, furniture, automobiles, etc. Filed Aug. 21, 1945 by Chemical Manufacturing & Distributing Co., Easton, Pa. Claims use since Mar. 1, 1940.

MAC'S-IT—This in upper case, bold letters for wax for floors, furniture and automobiles. Filed Nov. 5, 1945 by Mac's Super Gloss Co., Los Angeles. Claims use since May, 1939.

PDQ—This in lower case, extra bold, black letters for soap and mechanics' cleanser. Filed Apr. 16, 1945 by Davis Soap Co., San Francisco. Claims use since Sept. 20, 1923.

FRENCH TEX—This in upper and lower case, reverse, script letters on a screened rectangular background for dry cleaning preparation. Filed Aug. 28, 1945 by La France Dry Cleaners, Youngstown, O. Claims use since Dec. 10, 1944.

ATOMO—This in upper case, extra bold, black letters for hand soap. Filed Dec. 12, 1945 by George E. Grigg, Jr., Burlingame, Calif. Claims use since Nov. 10, 1945.

BEAU BRUMMEL—This in upper case, open letters within a double ruled rectangular box with a doubled semi-circular end for shoe polish. Filed Jan. 12, 1946 by Beau Brummel Polish Corp., Brooklyn. Claims use since Mar., 1920.

PHOTOGRAPH OF MRS. TIM MORRIS—For toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"PLATINE"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"SUPERSTITION"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc. Claims use since Dec. 31, 1945.

"SYMBOLE"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

"ZODIAC"—This in upper case, bold letters for toilet soaps. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc. Claims use since Dec. 31, 1945.

"ZODIACAL"—This in upper case, bold letters for toilet soap. Filed Jan. 19, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Dec. 31, 1945.

DOVE—This in upper case, extra bold, over-size letters for washing powders. Filed Jan. 21, 1946 by Kemo

Textile Products Co., Providence, R. I. Claims use since Dec. 27, 1945.

JACK OF HEARTS—This in upper case, bold letters for facial soaps, bath soaps and shaving creams. Filed Jan. 22, 1946 by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

KING OF HEARTS—This in upper case, bold letters for facial soaps, bath soaps and shaving creams. Filed by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

WET-MOR—This in upper case, extra bold letters for automotive and the like shampoo material. Filed Jan. 24, 1946 by J. I. Holcomb Mfg. Co., Indianapolis, Ind. Claims use since Nov. 21, 1945.

PRESAGE—This in upper case, extra bold letters for toilet soaps. Filed Jan. 24, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Jan. 21, 1946.

SABOTAGE—This in upper case, bold letters for toilet soaps. Filed Jan. 24, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Jan. 21, 1946.

UTOPIE—This in upper case, bold letters for toilet soaps. Filed Jan. 24, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Jan. 21, 1946.

VENDETTA—This in upper case, extra bold, black letters for toilet soaps. Filed Jan. 24, 1946 by Les Parfums de Dana, Inc., New York. Claims use since Jan. 21, 1946.

JACK OF CLUBS—This in upper case, bold letters or facial soaps, bath soaps and shaving creams. Filed Jan. 25, 1946 by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

JACK OF SPADES—This in upper case, bold letters for facial soaps, bath soaps and shaving creams. Filed Jan. 25, 1945 by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

JACK OF DIAMONDS—This in upper case, bold letters for facial soaps, bath soaps and shaving creams. Filed Jan. 26, 1946 by Golden Arrow Toiletries, New York. Claims use since June 1, 1945.

CARBOROSE—This in upper case, reverse letters on a rectangular, lined background for fungicidal preparation for treatment of athlete's foot. Filed Sept. 28, 1945 by Carborose Co., Brooklyn. Claims use since Oct. 18, 1941.

DINITROSOL—This in upper case, bold letters for insecticides. Filed Nov. 28, 1945 by Sherwin-Williams Co., Cleveland. Claims use since Aug. 13, 1945.

LLOYD'S SPIRIT OF YOUTH—This in upper case block and upper and lower case, bold, script letters for bubble bath preparation. Filed Jan. 12, 1946 by Lloyd-Sargent Co., New Rochelle, N. Y. Claims use since 1931.

(*Turn to Page* 145)

Soaps at Toiletries Show

THE fourth annual toilet goods show of the Chicago Associated Toiletries Salesmen was held in the Palmer House, Chicago, Aug. 19 to 28, with 175 exhibitors showing a complete line of soaps and toilet preparations. Many soap manufacturers were accepting orders subject to rationing in proportion to customer's previous volume of business.

Soap lines which had been reduced or suspended during the war are slowly getting back to normal, various manufacturers indicated. Yardley's, for example, has resumed distribution of its "Old English" lavender soap, but is rationing customers to make the supply go farther. John Hudson Moore, who during the war years offered only one de luxe bath cake, has re-introduced two old items, a regular bath soap and a hand soap. Allen B. Wrisley Co. has added long missing soaps to its "Gold Tassel" toilet sets for men and Alfred D. McKelvy Co. has restored its "Seaforth" concentrated liquid shaving soap after a year of non-production.

At the Ferd Mulhens, Inc., display, Morris B. Simpson, midwest sales manager, complained that lack of proper materials still prevents production of satisfactory transparent soap.

An inkling of conditions abroad was afforded by Edwin J. Hiller, secretary of Mauvel, Inc., New York, which for years has been manufacturing two lines of soap under license from the Societé Hygienique of Paris. Now this French concern, he said, is unable to make soap itself and is dependent on such supplies as Mauvel can send it from New York. Efforts to resume distribution here of an English soap, "OMY," which Mauvel had long handled, are still unavailing, he also stated. Mauvel formerly operated under the name of Maurice Levy Co., but in July reorganized from a partnership into a corporation and adopted the new name at that time.

Despite harassing restrictions, numerous soap manufacturers are proceding with plans for the future, including new lines, new packaging and new merchandising methods. Hewitt Soap Co., Dayton, O., displayed a new line of superfatted soaps under the brand name, "Lana," in sets of varied colors and scents. The company is again promoting its "Kensington" quality soap group in magnum and regular sizes and also pushing its familiar "Soap Treasures" in floral designs.

Roycemore Toiletries, Chicago, displayed a "Big League Cleanup" men's set, featuring a cake of soap designed to resemble a catcher's mitt, together with a shampoo and hairdressing, all in a box whose cover bears a picture of a big league ball game. The item was scheduled for release Sept. 25. Roycemore also displayed a 3-bar set of "Citation" soap and its recently introduced "Trellis" soapless cream shampoo.

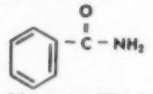
Lanchere, Inc., has redesigned its "Shamrock" series of hand soaps in three colors, bearing typical figures of Irish dancers, a harp and a clay pipe. These new items have just been placed on the market. Also shown were shaving sets, bath sets, bath softeners

(*Turn to Page* 169)

Hooker Research Presents Three New Chemicals with a Useful Future

Among the many new chemicals Hooker Research has developed during the past year, the three listed here have proved of such interest to research chemists and in such different areas that we feel warranted in bringing them to your attention again. Should a scanning of the condensed description cause a desire for more detailed information on any of them, we shall be glad to send you Technical Data Sheets giving more comprehensive physical and chemical characteristics. The coupon below makes it easier for you to request additional information.

BENZAMIDE

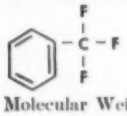


Molecular Weight	121.3
Melting point	125°C
Boiling point	290°C
Flash point	164°C
Fire point	185°C

Benzamide (Amide of Benzoic Acid) is a white, free-flowing monoclinic crystalline material. It is soluble in alcohol, acetone, hot water, and hot benzene; slightly soluble in cold water and other solvents.

Its physical and chemical properties suggest its possible application in the field of organic synthesis, including dyestuffs, pharmaceuticals and plastics. It is compatible with a limited number of resins including cellulose acetate and nitrocellulose with which it forms a firm transparent film.

BENZOTRIFLUORIDE

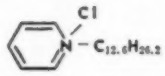


Molecular Weight	146.1
Freezing range	-28.5° to -29.5°C
Boiling range (ASTM, 98%)	2.5° including 101°C
Refractive index, n20/D	1.4145±.0005
Specific gravity, 15.5°/15.5°C	1.197±.001
Flash point	12°C

Benzotrifluoride is a water white liquid with an aromatic odor. It is completely miscible with most organic solvents. Thermal stability is excellent and under nitration or chlorination the CF_3 group is strongly meta directing.

A study of possible applications indicates that Benzotrifluoride may be of value in several industrial fields: dyestuffs, dielectrics, medicinals, insecticides, or other organic chemical synthesis.

LIQUID LAURYL PYRIDINIUM CHLORIDE



Molecular Weight (ave. active ingredient)	292.3
Specific Gravity, 15.5°/15.5°C	1.00
Freezing point	-1°C
Boiling point	100°C
pH	7.0

Liquid L. P. C. is a 30% water solution of Lauryl Pyridinium Chloride. It is a purified, non-staining, odorless, practically colorless product. It is miscible in any proportion with water and water miscible solvents as lower alcohols, acetone, and glycols. It is a cationic surface-active quaternary ammonium derivative possessing strong bactericidal and bacteriostatic properties.

Its germicidal, detergent, and penetrating characteristics suggest many possible applications in the field of detergent antiseptics, in the preparation of fungicides and disinfectants, and in textile finishing compounds. It also has possibilities in the preparation of cosmetic cotton, sterile bandages and other bactericidal or germicidal specialti-

3844

HOOKER CHEMICALS

HOOKER ELECTROCHEMICAL COMPANY

Buffalo Ave. and Union St., Niagara Falls, N. Y.

New York, N.Y. Wilmington, Calif. Tacoma, Wash.

Caustic Soda **Muriatic Acid** **Sodium Sulfide**
Paradichlorbenzene **Chlorine** **Sodium Sulfhydrate**

Please send me more information on
- ☐ Benzamide
- ☐ Benzotrifluoride
- ☐ Liquid Lauryl Pyridinium Chloride

Name ..... Title .....
Company .....
Street .....
City .....

BIDS AND AWARDS

W.F.A. Soap Awards

Special purchases of yellow laundry soap and synthetic laundry soap were announced in awards made by the Department of Agricture, Production and Marketing Administration, Washington, D. C., in recent openings for miscellaneous supplies for shipment under Lend-Lease, for U. S. Territorial needs, UNRRA, etc. Lever Brothers Co., Cambridge, Mass., received the awards on the following quantities of yellow laundry soap: 152,760 pounds at 7.065 cents a pound, 655200 pounds at 7.256 cents a pound; 381,780 pounds at 7.084 cents a pound and 762,000 pounds at 6.7 cents a pound. Colgate-Palmolive-Peet Co., Jersey City, N. J., received the award on 3,000,000 pounds of yellow laundry soap with a bid of 8.1 cents a pound. On the synthetic laundry soap, Phippe Products, Jamaica Plains, Mass., received the award with a bid of 8.78 cents a pound on 4,480,000 pounds.

D.C. Grit Soap Bids

In a recent opening for miscellaneous supplies by the District Government, Washington, D. C., the following bids were received on 3,500 pounds of grit cake soap: Day & Frick, Philadelphia, 4.48 cents a pound and Eagle Soap Co., Brooklyn, 4 cents.

Insecticide Bids

The following bids were received on 25 gallons of insecticide in a recent opening for miscellaneous supplies by the Petersburg, Va., office of the Department of Justice: Crystal Soap & Chemical Co., Philadelphia, $2.82; Elkay Products Co., New York, $1; McCormick & Co., Baltimore, $2.75 in five gallon containers and Sinclair Refining Co., New York, $1.50.

Treasury Wax Bids

Bri-Test Products Corp., Newark, N. J., entered a bid of $1.35 a gallon and R. M. Hollingshead Corp., Camden entered a bid of $1.24 on 2,750 gallons of floor wax in a recent opening for miscellaneous supplies by the Treasury Department, Procurement Division, Washington, D. C. In other Treasury Department openings, American Soap & Washoline Co., Cohoes, N. Y., entered a bid of 16.7 cents a pound on 9,600 pounds of powdered laundry soap. In the same opening a bid of 31.8 cents was received from Wm. Messer Corp., New York.

Insecticide Bids, Awards

The following bids and awards were announced in a recent opening for miscellaneous supplies by the La Tuna, Tex., office of the Department of Justice on, item 1, 100 pounds of wettable DDT spray powder; item 3, 50 pounds of activated sabadilla concentrate; item 4, 50 pounds of insecticide powder; item 5, 20 pounds of insecticide for dusting or spraying; item 7, 100 pounds of nicotine insecticide. On item 1, Agricultural Products Co., Las Cruces, N. Mex., 55 cents; American World Chemical Co., St. Louis, 62 cents; Barteldes Seed Co., Denver, 47.5 cents; Heid Brothers Corp., El Paso, Tex., 49 cents; Palm Seed & Plant Co., El Paso, 46 cents, accepted; Southwest Chemical Supply Co., El Paso, 73 cents; Vaughan Insecticide Co., El Paso, 55 cents and Vaughan's Seed Store, Chicago, 48 cents; on item 3, Heid Bros. Corp., El Paso, 19 cents; Vaughan Insecticide Co., El Paso, 58 cents, accepted; Palm Seed & Plant Co., El Paso, 19 cents; item 4, Heid Bros. Corp., El Paso, 19 cents; Palm Seed & Plant Co., El Paso, 24 cents, accepted; Vaughan's Seed Store, Chicago, 15 cents; item 5, Heid Bros. Corp., El Paso, 19 cents; Agricultural Products Co., Las Cruces, N. Mex., 14 cents; Palm Seed & Plant Co., El Paso, 10 cents, accepted; Vaughan Insecticide Co., El Paso, 28.5 cents; item 6, Palm Seed & Plant Co., El Paso, 12 cents, accepted; Vaughan Insecticide Co., El Paso, 30 cents; and item 7, on which no award was made, Vaughan Insecticide Co., El Paso, $1.50.

Panama Canal Soap Bids

Bids on unspecified quantities of various types of soap in a recent opening for miscellaneous supplies by the Panama Canal, Washington, D. C., were announced as follows: brown laundry soap, William Messer Corp., Camden, N. J., $8,007; Joseph E. Frankle Co., Cincinnati, $12,825; soap powder, Kamen Soap Products Co., Barberton, O., $3,885; Chemical Manufacturing and Distributing Co., Easton, Pa., $4,995; Soap chips, Standard Soap Co. of Camden, Camden, N. J., $6,500, accepted; and William Messer Corp., Camden, N. J., $8,588.

Treas. Metal Polish Bids

In a recent opening for miscellaneous supplies by the Treasury Department, Procurement Division, Washington, D. C., the following bids were received on 600 pounds of metal polish: A. L. Cahn & Sons, New York, 35 cents per pound; R. M. Hollingshead Corp., Camden, N. J., 14 cents; International Metal Polish Co., Indianapolis, Ind., 12 cents; Oils Specialties & Smelting Co., Brooklyn, 16.5 cents and Solarine Co., Baltimore, 12.5 cents, quoting on 17 cases of 36's, 612 pounds.

Independent Soapers Meet

A meeting of the Independent Soap Manufacturers of America was held Sept. 13th at the Hotel Stevens in Chicago. E. O. Gillam, chairman of the group, recently appeared before the Dept. of Agriculture in an attempt to get action on the House Small Business Committee's recommendations regarding revision of WFO 42b. At the Chicago meeting, Mr. Gillam was to report on what progress has been made in getting the USDA to act on these recommendations.

Wyandotte invests

Twenty-five million dollars . . . in an expansion program designed to help meet ever-increasing demands for industrial chemicals.

It is an investment founded upon faith—faith in the American system of free enterprise and in the continued greatness of this nation.

This program, already begun, is scheduled to be completed within eighteen months. It will greatly increase Wyandotte's capacity to produce calcium carbonate, chlorine and soda ash. Improvements in the method of processing caustic soda will also increase production of this vital material.

Included in the plans are new plants for the manufacture of glycol and synthetic detergents. The erection of the glycol and synthetic detergent plants will mark a major move by Wyandotte into the field of organic chemicals.

In addition to the huge construction project, Wyandotte is enlarging its sales force, its research, technical and engineering staffs—the better to meet customer needs.

Wyandotte will continue—as it has throughout the period of shortages—to allocate its production fairly to its regular customers at all times. Meanwhile, Wyandotte looks forward to the day when all requirements can be met promptly and entirely.

Wyandotte REG. U. S. PAT. OFF. *OFFICES IN PRINCIPAL CITIES*

WYANDOTTE CHEMICALS CORPORATION • MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine
Hydrogen • Sodium Zincates • Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

RAW MATERIAL MARKETS

As of Sept. 5, 1946

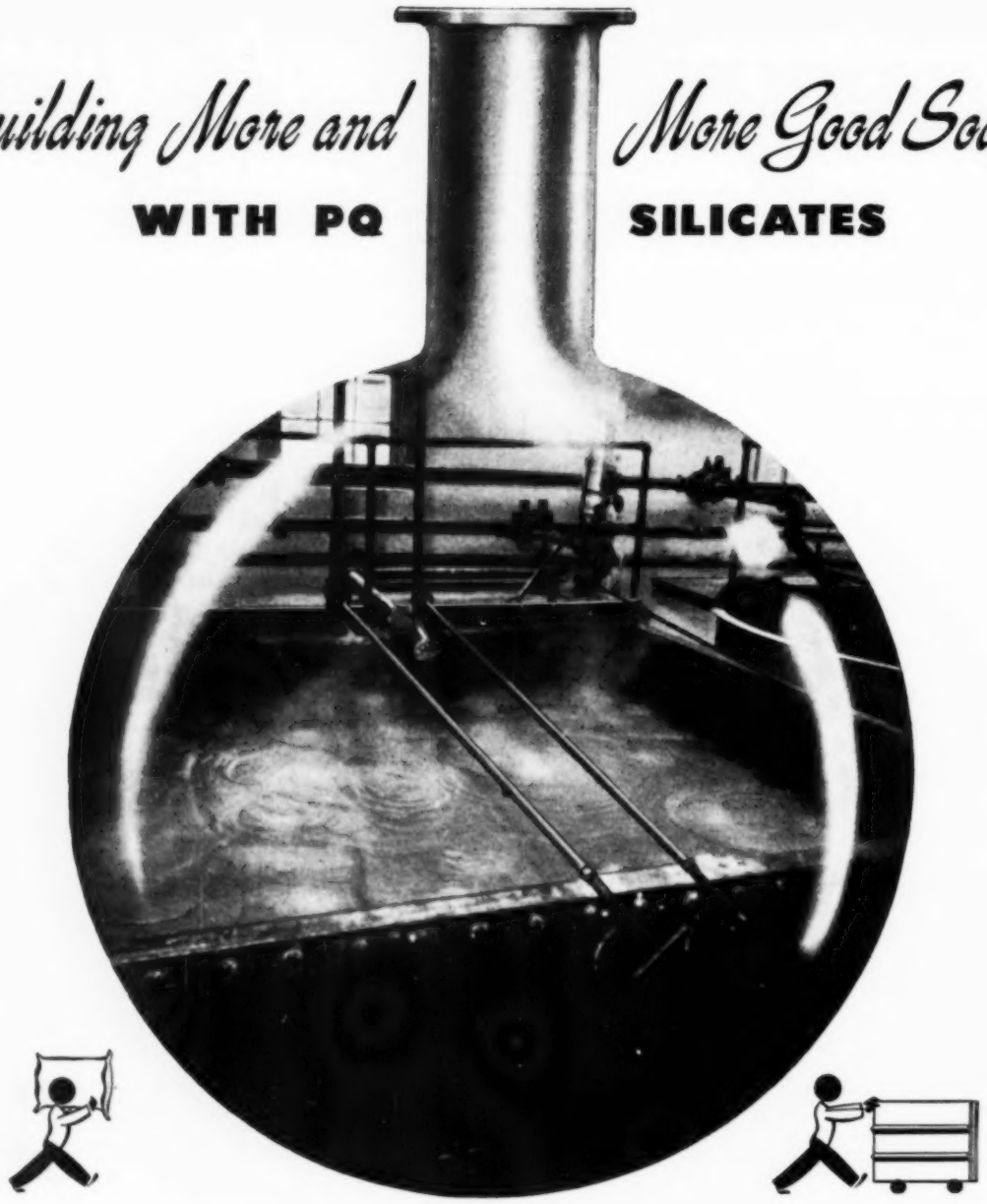
PRICE news of fats and oils, which approached the record levels of 1919 during the early days of August, was the dominant market note during the past month. Restoration of meat ceiling prices brought a rush of cattle and hogs to marketing centers to beat the Aug. 29 deadline. As a result of this flood of animals to market, prices fell sharply. In attempting to sell their cattle before reestablishment of ceiling prices $10 to $11 lower than those existing at the time, farmers drove the prices down from one to four dollars a hundredweight on most cows and steers, while hog prices registered drops of from three to eight and one-half dollars. According to press reports, 12 major terminals received 164,000 cattle, 21,000 calves, 75,000 hogs and 52,000 sheep and lambs on Aug. 26, as compared with 81,000 cattle and 44,000 hogs marketed the previous Monday. The Chicago run was the largest since 1934, when the drought forced farmers to unload their animals as a result of the cut in feed.

Earlier, according to the Fats and Oils Situation of the U. S. Department of Agriculture, the index number of wholesale prices of eight domestic fats and oils, at 238 per cent of the 1935-39 average, was 49 per cent higher than in June (during the first 10 days of August) and only two per cent under the post-World War I peak, reached in Nov., 1919. In spite of the higher prices, the USDA points out, no material increase in domestic production of fats and oils is in prospect within the next year. Production in this period is already partly determined by the 1946 acreages of oilseed crops and the size of the fall pig crop.

Prices of inedible tallow and greases at Chicago reached a peak of 45 per cent over the June level in the latter part of July. Price controls on domestic inedible fats and oils were restored July 26 at June 30 levels. The long range picture on supplies of fats and oils for the next year or so seems to shape up about this way: No material increase in domestic supplies of fats and oils is in prospect for the next 12 months. Factory and warehouse stocks on July 1, at 1,359 million pounds, were nearly 350 million pounds less than a year earlier and were the smallest for July 1, since 1926. Production of lard and grease next spring and summer probably will

Building More and More Good Soap..

WITH PQ SILICATES



Fat and oil scarcities mean extending supplies, yet the product specifications call for better cleaning efficiency. There's been a way to obtain both since 1860, when PQ Silicates began to be used in soaps.

Have you checked lately the percentage of silicate which you use? Perhaps a modification would result in an improved soap or detergent. For some brands it may be better to use a different grade of PQ Silicate, or even a potassium silicate for greater volume and stability of suds.

Be informed as to the variety of the PQ Brands—over 50 of them. Let us mail you Bulletin #17-1, which describes the most important of these.

1831 • 115th Anniversary • 1946

PHILADELPHIA QUARTZ CO.

DEPT. B, 129 SOUTH THIRD STREET, PHILADELPHIA 6, PA.

PQ SILICATES OF SODA

be smaller than in the spring and summer of this year as a result of a prospective reduction in the 1946 fall pig crop. Output of linseed oil from domestic flaxseed will be sharply diminished, with the 1946 crop of flaxseed now estimated to be down 40 per cent from last year.

Export supplies in world surplus-producing areas, particularly in the Philippines and the East Indies, are expected to increase, and it is likely that imports of oils and fats into the United States will be larger in the year which began July, 1946, than the 700 to 750 million pounds imported in the year that began July, 1945. At the same time, it is expected that exports of lard from the United States are likely to decline, reflecting current low stocks and reduced output in prospect for the first half of 1947. In addition, the Department of Agriculture has announced that after Dec. 31, 1946 it will undertake only limited commitments for exports of fats and oils. The United States exported 200 to 250 million pounds more fats and oils than it imported in 1945-46, whereas in pre-war years the United States had maintained a net balance of imports of around 1.5 billion pounds annually.

Meanwhile, the application of priorities to distribution of soda ash has been opposed by the Soda Ash Industry Advisory Committee on the ground that under priority ratings considerable tonnage would have to be shipped to new customers at the expense of old customers who were getting less than they required. Both soda ash and caustic soda continue in very short supply and it is now believed that there will be no improvement in the supplies of these two materials for the remainder of the year.

The essential oil picture showed slight change during the past month. Strikes and shortages at the plants of producers of basic raw materials for perfuming materials continue to plague the industry. Although imports are increasing, with demand strong and supplies short these move right into consumers' hands, thus giving no opportunity to build stocks. Higher shipping prices have had the effect of strengthening the price position of bergamot, boise de rose, etc. Two oils listed recently as not characterized by firmness in price were lavender and Algerian geranium.

During the month just passed, the OPA established a new formula for determining ceiling prices for producers' sales of bleached shellac. The action was taken because of rising prices of imported unbleached shellac.

—— • ——

Welch, Holme & Clark Moves

Welch, Holme and Clark Co., New York reported that the company was to move from 563 Greenwich St. to new quarters at 439 West St. about September 15, 1946. New telephone numbers will be CHelsea 3-6048, 49, 50, and 51. Welch, Holme and Clark Co., the president of which is E. D. Stults, was established in 1838 and incorporated in 1929. The company has been supplying the soap industry with oils, tallow, grease and chemicals for many years.

WHERE EFFICIENCY *Really* COUNTS!

IDEAL AMALGAMATOR TYPE "C" No. 83

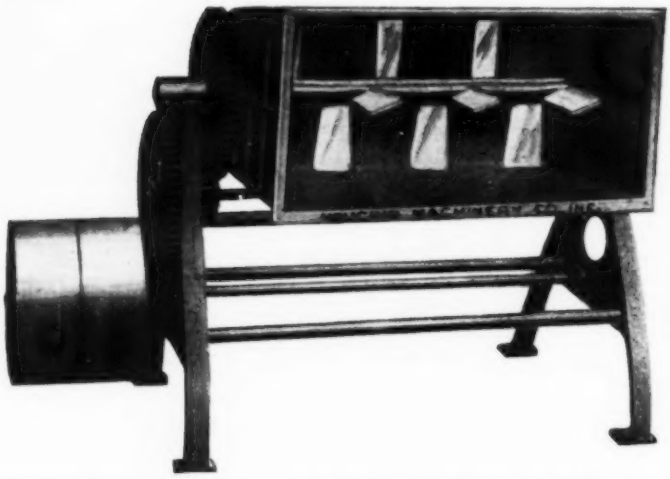
—made in two standard sizes with capacities of 200-250 lbs. and 250-375 lbs.

HOUCHIN AMALGAMATORS SAVE ON MILLING COSTS—

—because they are highly efficient

When adding perfumes and colors to toilet soap chips, it is essential that slippage on mill rolls be held at a minimum.

Houchin Amalgamators mechanically distribute all elements evenly and prevent any from remaining on the outside of the chips to cause slippage, which could slow up first milling by as much as 25%.



THE TILTING STYLE AMALGAMATOR

—has a capacity of 150-200 lbs. for the standard size (20" wide, 24" deep and 44" long). Other sizes with capacities in proportion also available.

•

Ask for Specifications of the Machine to Fill Your Needs

HOUCHIN
MACHINERY COMPANY, INC.

Manufacturers of Soap making equipment

Sixth and Van Winkle Avenues

Hawthorne, N. J.

PRODUCTION SECTION

Soaps in Organic Solvents

SOAPS are highly soluble in a mixture of solvents of which one is any glycol or dihydroxyl solvent, particularly with the two hydroxyl groups adjacent,—and the other is a hydrocarbon or a solvent which can dissolve a hydrocarbon, e.g., chlorinated hydrocarbons, alcohols, ketones etc. Such mixed solvents have a high solvent power for soap even when the separate solvents do not dissolve it.

Uses for Soap Plus Solvent

The following include some of the chief uses of soaps dissolved in organic solvents: (a) emulsification as in the manufacture of soluble oils for agricultural sprays etc., (b) lubricating greases and oils, (c) specialty soaps such as mechanics' hand soap, pine oil soap, metal polish, shaving paste, and shampoos, (d) dry cleaning, (e) defoaming, and so on. The solvent power of the mixtures mentioned can be used advantageously to produce these types of industrial products. Usually the main problem is to incorporate soap in a hydrocarbon solvent such as a petroleum fraction. For example in dry cleaning the cleansing power of solvent naphtha is much improved by dissolving in it a small quantity of soap.

Co-solvents

Ordinary soaps can be dissolved in hydrocarbons by the use of glycol-type compounds as co-solvents. Higher glycols or other derivatives are necessary for this. The property of soap of bringing about a pronounced increase in the mutual solubility of liquids is of help. For example, an addition of 15 per cent of sodium oleate will make benzene and propylene glycol completely miscible at room temperature, forming a clear mobile fluid, although the critical solution temperature of the system without soap is near 80°C. From the theory, such compounds as dibutyl tartrate and diamyl tartrate should serve the purpose.

The solubility of soap in dibutyl tartrate is very high and it is greatly increased by the presence of small proportions of hydrocarbons or chlorinated hydrocarbons. Thus, 100 grams of dibutyl tartrate dissolves 41.3 grams of sodium oleate at 25°C., and on addition of about 20 per cent of chloroform, benzene, amyl alcohol or any hydrocarbon solvent, increases the solubility by 10 to 30 per cent. A very useful property of such solutions is that they can be diluted with light petroleum fractions without precipitation of the soap.

To prepare soluble oil, commercial soap such as castile soap is dissolved in dibutyl tartrate containing 20 per cent of benzene or trichloroethylene. In this way a 30 per cent solution of soap can easily be prepared. The soap solution can be diluted with oil, vegetable or mineral, to make a final concentration of soap of about 3-5 per cent. The oil so prepared can be thinned to a creamy emulsion with water. The emulsion formed is very stable. By changing the type of oil, various industrial products can be made.

The same stock solution of soap can be used for dry cleaning, since it can be diluted with dry-cleaning fluids such as Stoddard solvent without precipitating the soap. Such solutions have good detergent power. Preparation of other specialty soaps offers no difficulty. It is necessary only to use a suitable compound having the glycolic groups, which are soluble in the solvent medium selected. When aqueous systems are concerned, any of the usual glycols can be used, as each of them increases the solubility of the soap to a remarkable extent. Monoglycerides or monoethers of glycerine can also be used. In nonaqueous systems, in addition to dibutyl tartrate any higher glycol or monoglyceride can be used if its solubility permits.

Soap in solvent mixtures of this type has no foaming power, even in concentrations as high as 20-30 per cent of soap. This property might have an application in defoaming. If a glycolic compound is added to an aqueous soap solution, the foaming power is considerably checked, and with a proportion of 30-40 per cent is practically destroyed. Ethylene glycol is not as effective as the other glycols. Propylene glycol, particularly when mixed with an alcohol or a ketone, can be used for such purposes.

Compounds which appear to have great potentialities in the soap-organic solvent field are tartaric acid and monochlorohydrin. From tartaric acid the esters of various aliphatic and aromatic alcohols can be prepared. Various aryl substituted compounds can be produced from chlorohydrin which can reasonably be expected to be very powerful soap solvents. The theoretical considerations involved suggest many possibilities. S. R. Palit *Soap, Perfumery & Cosmetics* 19, 471-2 (1946).

Higher Fatty Alcohols

ONE of the interesting war-time developments in German chemical industry was a process for production of higher aldehydes by the catalytic interaction of the higher olefines and water gas. The importance of the method lies not so much in the value of the aldehydes themselves as in the fact that they can be readily reduced to higher fatty alcohols; the latter are of wide importance in their sulfated form as synthetic detergents. Normally these higher fatty alcohols are made by the catalytic reduction of the fatty acids obtained from glyceride oils and fats.

The experimental work for this process was carried out by the Ruhrchemie but the capital stock in the operating company—the Oxo Gesellschaft, is held jointly by the Ruhrchemie, the I. G. Farbenind., and Henkel Co., which indicates its importance.

The process consists of reacting C_{11}-C_{17} olefines obtained by the Fischer-Tropsch method, with water gas in the liquid phase at about 150 atmospheres' pressure. The reaction results in a mixture of straight-chain aliphatic aldehydes and ketones, with the former predominating. Construction of the plant was begun in 1938 and it was scheduled to be in operation in 1942. It was damaged only slightly and could be put in operation in about 3 months to produce 10,000 metric tons per year, with comparatively easy expansion to produce 25,000 tons per year.

Yields of olefines of about 50 per cent have been obtained in the cracking unit operating at 400-450°C. The reaction is carried out batchwise. The converters are vertical and provided at the bottom with a shaft and bearings so that they can be tipped to a horizontal position at the ground level for repair and cleaning. There are 4 units, each 12 meters in length, with an internal diameter of 40 centimeters, with provision for 6 additional units.

The catalyst unit is charged three-quarters full with a suspension of catalyst material in the liquid C_{11}-C_{17} olefines. The catlyst is standard and is composed of 90 per cent cobalt, 7 per cent thoria, and 3 per cent magnesia, deposited as carbonates on kieselguhr. Each converter is provided with heating and cooling means.

Water gas is compressed to 300 atmospheres in 4-stage compressors and reduced to 150 atmospheres, at which pressure it is introduced into the bottom of the converter. Operating temperatures vary from 150° to 180°. The relative amounts of aldehyde and ketone can be varied by controlling the temperature—the higher temperature favors aldehyde yield but results in some polymerization, which in turn reduces the yield.

The capacity of the converter in total liquid products is 700-720 liters per batch, which corresponds to 500 kilograms or 1,100 pounds of product. The actual time for the reaction is 20-30 minutes, and the total time, including charging and discharging the converter, is approximately one hour.

The water gas is recirculated through the converter and fresh material added. The composition of the inlet gas is as follows: carbon dioxide 6 per cent, carbon monoxide 38-9 per cent, hydrogen 48-9 per cent, and the balance inert gases. Residual gas after reaction is carbon dioxide and inert gases 20-30 per cent, carbon monoxide 15-20 per cent, and hydrogen 40-50 per cent. The quantity of recirculated gas is 200 cubic meters per hour and of fresh gas 40-50 cubic meters per hour. The catalyst can be re-used 50-100 times, depending on the type of olefines employed. Gaseous olefines can also be used to produce lower aldehydes.

Separation of the oxygenated compounds from unreacted olefines is accomplished by fractional distillation. Reduction to alcohols is a very simple procedure in which a Raney type of nickel catalyst is used. R. L. Hasche and R. H. Boundy, U. S. Tech. Ind. Intelligence Comm. Report 22—XXVII—18; through *Chem. Trade J.* & *Chem. Engineer* 118, 693-4 (1946).

—— ♦ ——

Low Grade Fats

The A.O.C.S. Dry Extraction Method for Total Fatty Acids of Soap Stock and Acidulated Soap Stock is recommended for determining gravimetrically the fatty acid yield in low grade fats provided the method is modified to include the petroleum ether-insoluble but alcohol-soluble fatty acids. The A.O.C.S. Method for Glycerol in Commercial Soaps and Soap Products gives uniformly high results when applied to low grade raw fats. For all practical purposes glycerol yields obtained by this method on such fats should be corrected downward by 0.4 per cent.

The need for adequate catch basins in a fatty acid plant cannot be overemphasized. Much of the fat and fatty acids drawn off with water and emulsions from processing tanks will separate in the catch basins and can be reclaimed. The sewer system leading to the catch basins should preferably carry only processing liquors so as to keep the amount of water and the flow through the catch basins to a minimum. Separate pumps for each department are desirable in order to eliminate degrading of stocks as much as possible. J. L. Trauth. *Oil & Soap 23*, 137-40 (1946).

—— ♦ ——

Soap Rinsing Method

Alkali soap is rinsed from washed fabric in a rinsing bath containing a metallic salt of a character to react with the soap to form an insoluble metallic soap. The fabric is first squeezed to expel most of the soap solution. It then passes into a rinsing bath and is loosened from its compressed state to provide complete saturation of the fabric. The fabric passes into, through, and out of the bath continuously in less than one minute, so that the retained alkali soap in the fabric is not converted to insoluble metallic soap. The rinsed-out soap floats upward to the surface of the bath and is drained off. A. Schellenberg. Canad. Pat. No. 435,218.

New Formula Cuts Soap Use

A new formula for blending a liquid soap claimed to result in a satisfactory product with about one-half the usual soap content was recently reported by Rohm & Haas Co., Philadelphia. The real soap content of the new product is down around 9-10 per cent. It is reported that the formulation not only gives results equivalent to those obtained from standard liquid soaps from the standpoint of detergency, but in addition it adds wetting power, improves rinsability and has proved also to be highly effective in hard water.

Although any given formulation frequently must be adjusted slightly to accommodate the particular type of fatty acid base employed by the soap manufacturer, the company recommends a basic formula containing .4% methyl cellulose, 44.5% water, 0.1% "Tamol NNO," 5% "Triton X-300," and 50% liquid potash soap (18-20% soap). Methyl cellulose is manufactured under various trade names by other chemical companies.

The basic extending ingredient is "Triton X-300," one of a group of synthetic wetting agents, which for years have been used in the textile industry for scouring, penetrating, and leveling. The "Tritons" are also used in cosmetics, car washes, and soapless household cleaners.

The formulation is said to give a clear solution with better viscosity than that of standard scrub soaps. It has been tested with 20% corn oil soap, 20% coconut oil soap and standard trade name soaps made with tall and linseed oil fatty acids. In every case the formula did not reduce the foam and gave good results from the standpoint of detergency.

In preparing the formula, the methyl cellulose is dissolved by adding it to a portion of the water which has been heated near the boiling point. The methyl cellulose is allowed to soak for 20 or 30 minutes at which time the remainder of the water is added cold and stirred until smooth. The "Tamol" is dissolved in a portion of the water, the "Triton" added, and the entire mixture is then added to the soap. The cloudy mixture is cleared when the scrub soap is added.

Where complete clarity is not important "RHotex GS" can be used to replace the methyl cellulose and the "Tamol." "RHotex GS" is more readily available than methyl cellulose and is a more effective thickener, but gives a somewhat turbid liquid soap.

Sequestering Agents

The effectiveness of three sequestering agents in preventing the formation of insoluble soap films on utensils during hard water washing operations in alkaline solutions was studied. The agents included sodium hexametaphosphate, tetrasodium pyrophosphate, and sodium tetraphosphate. The alkaline cleaners were caustic soda, soda ash, trisodium phosphate, sodium metasilicate, and sodium sesquisilicate. Experiments with various ratios of sequestering agent and alkali in 0.3 per cent solutions at 140° and 200°F. showed that in general the sequestering ability was reduced at the higher temperature and that it was affected by the presence of other ions. It was found easier to sequester magnesium than calcium. The effectiveness of sodium hexametaphosphate and sodium tetraphosphate in respect to calcium sequestration is about equal, while tetrasodium pyrophosphate is somewhat less effective. Tests in actual washing procedures indicated that precipitation of the hardness during the rinse is very critical in the formation of films on cleaned utensils. This makes essential the use of large proportions of these sequestering agents in cleaning mixtures to prevent precipitation of water hardness on the utensil in the rinse. E. H. Mann and C. C. Ruchhoft. U. S. Pub. Health Repts. 61, 539-45 (1946).

Thio Acid Antioxidants

Compounds containing one or more sulfur atoms attached to two fatty acid groups prevent rancidity in edible vegetable, animal, and fish oils, fats, and waxes. Examples are alpha,-alpha-thiodipropionic acid, carboxymethyl-beta-thiopropionic acid, and carboxyhendecyl - beta - thiopropionic acid. D. K. O'Leary, to E. I. du Pont Co. U. S. Patent No. 2,397,976.

Brushless Shaving Cream

Brushless shaving cream is both a type of vanishing cream and a superfatted soap paste. A formula utilizing nonionic emulsifiers was developed to test the effect of polyols on the product.

	Per Cent
Stearic acid, triple pressed	12.5
Sorbitan monostearate	2.5
Sorbitan monostearate polyoxyalkylene deriv.	1
White petrolatum	10
Polyol	5
Ammonia water 28%	2
Water to make	100

The sample made with propylene glycol as the polyol was firmer than that made with glycerine. Otherwise the two were similar. The same formula was duplicated using 15 per cent of mixed polyols. One sample contained 2.5 per cent of commercial sorbitol syrup plus 12 per cent of propylene glycol. The other contained 2.5 per cent of commercial sorbitol syrup with 12 per cent of glycerine. The glycerine mixture was firmest; the propylene glycol mixture gave the best gloss and pearl; the glycerine mixture produced a grainy cream.

It was concluded that the polyols,-glycerine, propylene glycol, and sorbitol syrup, while possessing humectant and plasticizing properties, replace each other only to a limited extent. A formula balanced with one polyol may be completely unsaleable when substitution with another polyol is made. This is particularly true of liquid emulsions containing glyeryl monostearate and triethanolamine soap. M. G. de Navaree, *Soap, Perfumery & Cosmetics* 19, 469-70 (1946).

Washing Paper Stock

Production of washed de-inked book and magazine stock is impaired in many cases by formation of scale which clogs the wires of cylinder washers and fills up drain pipes and pumps. On the basis of several months' operating experience it was found that threshold treatment of the shower water with 2-3 p.p.m. of sodium hexametaphosphate resulted in stoppage of scale deposition, removal of old scale, and decreased cost of maintenance of the washer system. H. P. Bailey and A. H. Nadelman. *Paper Trade J.* 122, No. 13. 17-8 (1946).

PRODUCTION *Clinic*

By DR. E. G. THOMSSEN, PH.D

ALMOST annoying and difficult situation to deal with in factory management is stealing, not only the actual theft of goods but also the filching of time through deliberate loafing, late coming and early leaving. Dealing with these situations calls for tact and patience for the mishandling of specific incidents may result in very unpleasant complications.

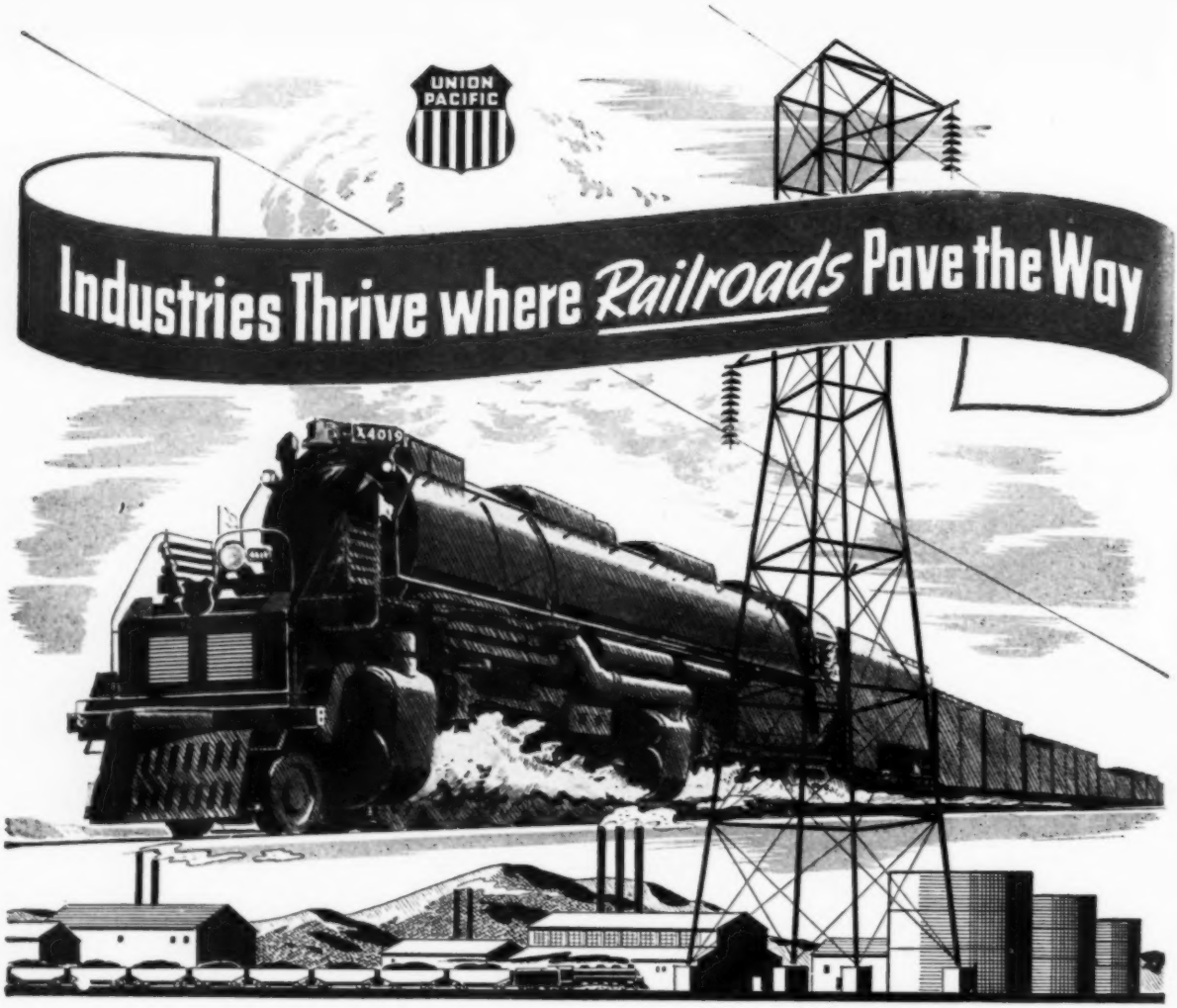
The taking of tangible property follows various, pretty well-defined directions. Employees will hide and steal small items on which they are working. Mechanics especially will carry home small tools. Electric light bulbs and electrical or plumbing fixtures are favored articles to pilfer. Less frequently the thefts run into more volume where collusion between stockroom employees, the shipping clerks, truckmen and salesmen may be involved. This last ort of stealing has been known to run nto huge amounts before being disovered. As to stealing time, this probably runs into larger money figures than does the theft of tangible articles. Since dishonesty is a common trait, persons responsible for factory operations must face it and apply corrective measures.

There are a few methods used successfully to overcome losses of property and time by theft. In many plants, especially the smaller ones, employees are permitted to enter and leave by various exits. This condition makes it very simple for a dishonest person to escape detection if he is inclined to pilfer. A properly run plant requires employees to leave and enter at one specified entrance where either a time

clock or a time keeper can be stationed. Even if time clocks are used, a watchman should be present when employees enter and leave for work. It is his duty to see that but one number is rung up on the time clock cards and to note what the employees are carrying in and out of the building. Many plants require a pass slip properly initialed by a responsible foreman or department head before a package can be taken out of the building. As many employees carry their lunches in special containers it is at times requested that these be opened as they pass the watchman. In certain plants, when employees are too late or desire to leave too early, they find the doors locked. A remotely controlled electric switch attached to a good sized gong acts as a satisfactory watch-dog in off hours and makes late comers more conspicuous and chagrined. Of course if the plant is large enough, a guard constantly on the job is desirable. The watchman or guard must be a carefully selected and honest individual as much of the efficiency of the job depends upon him. Once in a while it is good policy to replace him without warning with a foreman or forewoman to ascertain if he is doing his job satisfactorily.

The habit of certain supervisory employees of coming in late is a ticklish condition to handle. It is a good policy to build up these employees in their men's estimation by not requiring them to punch the clock and thus bring them down to the level of the men or women they boss. Certain small privileges to such key employees make for better discipline all around, even though some employers take the attitude that all workers from the top boss down should be subject to the same plant discipline. It is true that these privileges are often abused. To overcome this is fairly simple. One company called unexpected meetings of executives at 10 minutes past coming-in time. Latecomers felt quite guilty when asked to explain their absence. Another method is to require these supervisory employees to keep their own time on a sheet furnished them and to be signed as being accurate. As a general condition, however, key employees are in authority because they are trustworthy and conscientious and work longer than the specified factory hours.

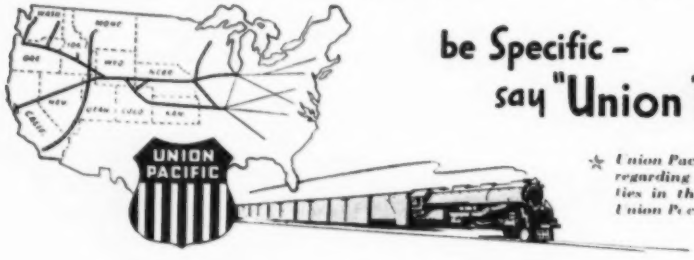
When the regular employees have entered the plant, other precautions are desirable. The locker room should be close to the entrance door. It is preferable to have open-front lockers rather than the closed types, and to lock and unlock the locker room at the same time the entrance door is locked or the gong mentioned above is on. Anybody desiring to enter the locker room in off hours must obtain permission to do so. Such a system of automatic checks permits the examination of the lockers very readily and makes it more difficult for employees to sneak away from the job early. Employees also are more careful with their personal effects, which will minimize the petty thievery that often occurs in closed lockers. At times employees will caché certain articles outside the building and get them in off hours. This condition has come to our notice on several occasions. We remem-



WITH the coming of the railroads, the western frontiers were conquered. They brought men, implements for building homes and towns, transportation for marketing products. Then factories were built. And industries thrived where railroads paved the way.

In the 13 great states served by Union Pacific, there still is land to be tilled, minerals to be unearthed, livestock to be raised, room for new homes and industrial expansion.

Union Pacific will continue to serve the territory it pioneered, by providing efficient, dependable, safe transportation for shippers over the time-saving Strategic Middle Route.



be Specific – say "Union Pacific"

☆ *Union Pacific will gladly furnish confidential information regarding available industrial sites having trackage facilities in the territory it serves. Address Industrial Dept., Union Pacific Railroad, Omaha 2, Nebraska.*

UNION PACIFIC RAILROAD

The Strategic Middle Route

ber one case when we recovered thousands of dollars worth of products in the home of a dishonest employee who placed the articles in a special compartment outside of a remote, well-hidden basement window and picked them up at night. Such conditions are difficult to spot, but barred basement windows act as a deterrent to such carefully planned larceny.

The stealing of light bulbs, small fixtures and tools presents a rather difficult problem. It is surprising to note how frequently electric bulbs disappear. Special sockets, opened only by a key, and having the name of the company blown into the lamps are worth the added cost if purchased in sufficient volume. Keeping the fixtures out of reach will prevent their being stolen. Small electric and plumbing fixtures are favored by petty thieves. They are easily concealed and mechanics most often are the offenders. On one occasion, a trusted crew boss carted off enough material of this sort to equip two homes he had built. Only the fact that too many bib cocks had been issued on a job made it possible to discover these losses. This type of thieving may be thwarted by issuing supplies to a certain job through the stock clerk who is responsible for these supplies. Thus having a double check on them it is not too easy to carry off quantities.

Tools are very often stolen. We remember a construction job a number of years ago where mechanics considered it their privilege to take tools not only from the company but from fellow workmen. Various procedures help reduce losses of these items. A common one is to punch the name of the owners into wrenches, hammers, etc. Another is to issue a kit of tools to a mechanic and make him responsible for their return or their value in cash. In some plants mechanics must furnish all their own tools, six inches long or under. These smaller sizes are the ones most frequently purloined. Tools are quite an item in many plants and more are carried off than are worn out.

Thefts on a larger scale through conspiracy of a number of employees are quite serious at times. Recently we heard of a case of a salesman selling appliances to certain favored customers at a slight reduction in price because of their being represented as returned goods. Gradually the quantity of "returned goods" increased and ran into sizable quantities. One of the customers became suspicious and called the attention of a company executive to these deals. The company had stamped serial numbers on this equipment just as a precautionary measure. An examination of these serial numbers trapped the employees involved but not before thousands of dollars worth of material had been stolen. This company could well have afforded to have a capable stock clerk to distribute the material to the shipping clerk involved but did not believe this expense was warranted. As a result every person in the plant had access to the finished stock which was not even locked up. The temptation to steal was too great for a group of the employees. The point here is that many companies make it too easy for employees to rob them. Then too, constant contact with even valuable articles may depreciate their worth in the eyes of the employee. They first take small quantities, find out how easy it is and then plunge. It is good policy to prevent such thievery by making finished articles and raw material difficult to get at by locking them up.

This problem of stealing is one that must be guarded against constantly. It is one that is continually with us and experienced factory men are on guard against it at all times.

A Rapid Emulsifier

The A. T. Case Company, Los Angeles, built an emulsifying machine that should find wide application in those plants which make emulsions. Such items as floor waxes, polishes, paste waxes, automobile polishes and oil emulsions are made more rapidly and economically with this machine then by certain other methods, according to the manufacturer. The emulsifier consists of two tanks supported on a steel frame and piped together through three valve controls. The tank to the operator's right is compartmented. Into this are introduced the "continuous media" ingredients to be emulsified and the "discontinuous media." If other discontinuous media ingredients are to be used, these are run into the tank to the left. In this left side tank is installed the emulsifying head run by a splash proof motor. As the power is turned on the liquids flow from the compartmented tank, as the mixing valves are manipulated, into the emulsifying or activating tank. Here they are forced through a dispersion head with any additional liquids or ingredients placed in this mixing tank. The emulsification is continued until the desired degree of dispersion is attained. Then the finished emulsion is emptied to storage tanks or a liquid filler by merely turning a three-way valve. The tanks are made from stainless steel, the machine is very compact, emulsifies very rapidly, uses little electric power and makes excellent, uniform emulsions.

Oil Filters

The names "Alsop" and "Hy-Speed" are well known to those engaged in the mixing and filtering of liquids. The Alsop line comprises numerous pieces of equipment for processing liquids. Recently they sent us their catalog on "Disc-Pak" filters. This booklet gives specific information regarding oil filters. It is profusely illustrated and includes several half page blueprints suggesting piping layouts for proper installation of a single or multiple series of filters. Alsop oil filters are used for diesels, turbines, transformers, etc. and give results, believed impossible by many oil experts, in the removal of sludge and water as well as keeping down the formation of acids in engine oils by removing the causes of acid formation. They filter out particles 2 microns (78 millionths of an inch) in size by the use of medium type filter elements. Eight other densities of elements are available to obtain satisfactory results to meet any condition. No inhibitors or additives which are in oil solution are removed by Alsop filters as they contain no chemicals or clay of any kind. These filters are simple to run and no ex-

perienced operator is needed to change the disc-paks.

This same catalog also describes briefly the Alsop line of general purpose filters for water, chemical solutions and other fluid preparations. A copy may be had by writing to Alsop Engineering Corporation, Milldale, Conn.

pH Indicator

The Hartman-Leddon Company, of Philadelphia, make a universal wide-range pH indicator that is a convenient general gauge for approximating pH values and also will be found useful as a reference in laboratories by having included the color reactions chart of specific indicators. The universal indicator consists of a powder to be put into solution. To those interested in fuller details it is suggested they obtain the circular direct from the suppliers.

Elapsed Time Finder Rule

A new device copyrighted and sold by the Mundro Products Corp., Detroit, is the Elapsed Time Calculator, constructed on the slide rule principle. Its function is to determine elapsed time and should be of interest to many small plant operators who do not have elaborate time-keeping staffs and equipment. It is useful for determining time for payroll purposes, speeding up calculations, and reducing errors.

New Permutit Booklet

Basic types of ion-exchanging water softeners for industrial, institutional and municipal use are explained in a booklet issued recently by Permutit Co., New York. The water softeners described are of both pressure and gravity types which feature automatic equipment to control backwashing, brining and rinsing processes. Copies of the booklet can be had upon written request.

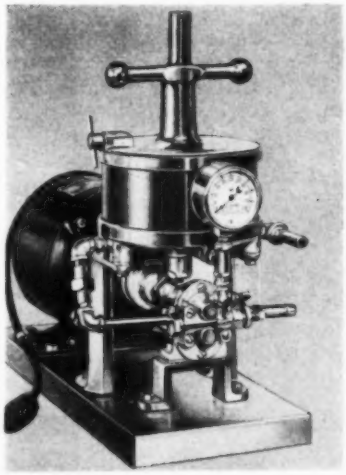
New Turco Dispenser

Turco Products, Inc., Los Angeles, have announced a new, all-metal heavy-duty, hand soap dispenser for use in industrial plants. It is available for immediate delivery. White vitreous porcelain and chrome have been used for the design. The top is stainless steel and is hinged so as to raise for easy refilling. A concealed locking device prevents tampering. Inside, the dispenser is black, vitreous-fired porcelain which facilitates the movement of the cleaning compound as it is released. Literature giving full

information about the dispenser, as well as Turco "Handisan," an antiseptic hand cleaner for use with the dispenser, is available upon request from the company.

New Alsop Filter

The Alsop Engineering Corporation, Milldale, Conn., announces a new bench type filter especially designed for light manufacturing or pilot plant work. It is of the "sealed-disc" type using asbestos discs which can be supplied in eight different grades



for coarse or ultra-fine filtration. The filter is completely enclosed, preventing loss of liquid by dripping or evaporation, and so designed that when the handle on top is removed the entire filter can be taken apart for easy cleaning.

This model shown which has a positive pressure rotary pump is made with capacities from one to six gals. per minute and with filtration areas of from 40 to 1200 square inches. When liquid contains abrasives, carbon, filter aids, or acids an Alsop centri-poise pump can be used and all parts touching liquid can be made of stainless steel, monel metal, bronze, iron, etc. A folder describing the new filter is available.

New M. M. & R. Catalog

Magnus, Mabee & Reynard, Inc., New York, recently issued a new price list and catalog to cover the third quarter of 1946. The booklet gives prices on various essential oils, balsams, aromatic chemicals, oleoresins, certified colors, flavoring materials, and basic perfume products, as well as listing the addresses of domestic sales representatives throughout the country.

Sharples Synthetics Book

A new booklet, "Sharples Synthetic Organic Chemicals," listing commercial products and many products now in the semi-commercial stage of development, is now available from Sharples Chemicals, Inc., Philadelphia. Over one hundred-fifty synthetic organic chemicals are described. Sharples produces alcohols, alkyl chlorides, substituted amides, amines, dithiocarbamic acid derivatives, ethers, esters, hydrocarbons, mercaptans, organic sulfides, phenols, and substituted ureas. The company will send the booklet on request.

Notes on Soap Saving

The shortage of household soaps has made the saving of soap a subject of considerable interest on the "women's pages" of many newspapers. One such picture feature in the *Chicago Daily News* recently showed housewives how an egg beater, a meat grinder and other kitchen utensils can be requisitioned to make soap scraps go farther.

PRODUCTS AND PROCESSES

Soap Granules from Chips

Conventional soap chips such as those prepared from a grease or tallow base having a titer of 25-43°C., are placed in a mulling or mixing machine, and 20-5 per cent of water is added to convert the mass into a relatively uniform paste. Various other ingredients such as alkali salts, fillers, essential oils, and water softeners, may be added to the soap paste prior to subjecting it to the action of the muller rotors spaced at about 1/8 to 3/16 inch above the bottom of the vessel and revolving at about 25 r.p.m. After about 10 minutes the entire mass crystallizes and disintegrates into granules containing 60-80 per cent of anhydrous soap. F. E. Joyce and E. F. Lindhardt, to National By-Products, Inc. U. S. Patent No. 2,382,063.

Continuous Soap Making

In the method of soap manufacture in which lye is passed continuously into confluence with a flowing stream of fat with saponification taking place at an elevated temperature, and in which the degree of saponification is kept above 85 per cent to avoid formation of difficultly separable emulsions, a compartment of a mixer down-stream is provided with a connection through which a further quantity of fat is fed to utilize the excess saponification agent above that required to maintain 85 per cent saponification. L. Sender and L. D. Jones, to Sharples Corp. U. S. Patent No. 2,397,162.

Aluminum Soaps

Aluminum dilaurate and distearate appear to have a crystal structure analogous to the sodium soaps, that is, the metal atoms are arranged in a double layer from which the fatty acid radicals extend in opposite directions, end to end. Hence in the aluminum di-soaps the two acid radicals attached to any aluminum atom lie side by side. Aluminum di-soaps produced by precipitation and extraction at higher temperatures have a monoclinic angle of 48°. Those produced at low temperature and extracted at low temperatures have a higher value of 60°. S. Ross and J. W. McBain. *Oil & Soap* 23, 214-5 (1946).

Method of Saponification

The formation of difficultly separable emulsions can be avoided by keeping the degree of saponification of the fat below 70 or above 85 per cent. In a multiple compartment mixer, the degree of saponification may be made to an extent greater than 85 per cent and then maintained automatically above that figure in succeeding compartments by not adding additional fat, —or the saponification may be kept below 70 per cent in the first compartment and raised above 85 per cent in succeeding compartments. L. Sender and L. D. Jones, to Sharples Corp. U. S. Patent No. 2,397,161.

Emulsifiable Mixture

A mixture of petroleum mahogany sulfonate, oleic acid, a metal oleate, and a polyhydric alcohol or monoether is blended with animal or vegetable oils to form a product instantly emulsifiable in aqueous media. A. Moscowitz, to L. Sonneborn Sons, Inc. U. S. Patent No. 2,396,718.

Copper Soaps

Dry copper soaps free from oily impurities, can be made by direct reaction with higher fatty acids, by heating equivalent proportions of comminuted copper metal with the fatty acid at about 200°C. Add 318 pounds of powered copper to 2090 pounds of mixed fatty acids from coconut oil. Stir vigorously with a mechanical agitator at 200°C. and blow a vigorous current of air through the mixture until the copper is dissolved, about 1.5 hours. Shut off the air and transfer the copper soap to a storage tank containing nitrogen to avoid oxidation. Equipping the reaction vessel with a reflux condenser will help to avoid loss of volatile fatty acids. Copper soaps may be used in the manufacture of disinfectants, germicides, insecticides, fungicides, and other products. J. E. Taylor, to Procter & Gamble Co. U. S. Patent No. 2,397,767.

Rosin Derivatives

Water-soluble compounds having foaming, detergent and other surface-active properties are prepared by condensing rosin or allied materials such as ester gum, abietic acid, or rosin oil, with an alkylating agent such as the alcohols obtained by the reduction of coconut-oil fatty acids, and sulfonating. The sulfonation may be carried out prior to alkylation in which case a higher temperature is required for the alkylation. D. Price and E. L. May, to National Oil Products Co. U. S. Patent No. 2,397,692.

Improving Sulfonates

Compounds having critical oxidation-reduction potentials not exceeding 1.10 volt are used as odor inhibitors in mixtures of alkyl aryl sulfonates. Alkyl aryl detergents prepared from kerosene develop a yellow color and rancid odor on storage. Addition of 0.1 per cent of hydroxy, amino, or hydroxyamino derivatives of benzene or naphthalene, substituted ureas, hydrazine or organic thiocyanates, inhibits the development of undesirable odors. The detergent mixture consisting of 40 per cent sodium alkyl benzene sulfonate and 60 per cent sodium sulfate is treated with 6 parts of water and 0.001 part of inhibitor and the solution is dried in a rotary drum dryer. L. H. Flett, to Allied Chemical and Dye Corp. U. S. Patent No. 2,397,133.

Fractionating Tallow

Tallow or other fatty substances containing high-melting constituents is melted, filtered, and transferred to a crystallizing tank at 50°C., and the high-melting constituents are crystallized out at 30-35°C. The liquid portion is then sucked away through a filter contained wholly within the tank and maintained at the same temperature. Aktieselskabet Skandinavisk Fedt Ind. Danish Patent No. 59,571.

NEW PATENTS

Conducted by

Lancaster, Allwine & Rommel

Registered Attorneys

PATENT AND TRADE MARK CAUSES

402 Bowen Building, Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired to Lancaster, Allwine & Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,403,413, Process of Making Soap, patented July 2, 1946 by Benjamin H. Thurman, Charlotte, N. C., assignor by mesne assignments, to Benjamin Clayton, Houston, Tex., doing business as Refining, Unincorporated. The process of making soap and recovering glycerine from glycerides, which comprises, splitting said glycerides to produce a mixture of glycerine, fatty acids and water, adding a saponifying agent to said mixture to convert said fatty acids into soap, and separating glycerine from said soap.

No. 2,403,435, Parasiticide Composition, patented July 9, 1946 by Oscar H. Hammer, South Haven, Mich., assignor to The Dow Chemical Co., Midland, Mich. A coarsely subdivided, free-flowing fumigant composition including a dispersion of a volatile liquid fumigant in exploded mica, the average particle size of the mica carrier being at least 1/64 inch in diameter.

No. 2,403,495, Insecticide, patented July 9, 1946 by Charles Verne Bowen, Bethesda, Md., assignor to the United States of America, as represented by the Secretary of Agriculture. A method for controlling insects comprising applying 1,4-diphenylthiosemicarbazide to the habitat of the insects.

No. 2,403,612, Process for Removing Greasy Deposits From Concrete, Wood, and Tile Surfaces, patented July 9, 1946 by Robert L. Reynolds, Washington, D. C., and Harlan M. Rice, Syracuse, N. Y., assignors to The Solvay Process Co., New York. A process for removing a greasy deposit from a surface soiled therewith selected from the group consisting of concrete, wood and tile surfaces which comprises applying thereto a composition comprising o-dichlorbenzene containing dissolved therein between about 1 per cent and about 25 per cent of a water-soluble alkyl mononuclear aromatic sulfonate detergent substantially free of inorganic salts, the alkyl side chain of which contains between 12 and 30 carbon atoms, and then flushing the greasy deposit from the surface with water.

No. 2,403,613, Process for Removing Greasy Deposits From Concrete, Wood, and Tile Surfaces, patented July 9, 1946 by Robert L. Reynolds, Washington, D. C., and Harlan M. Rice, Syracuse, N. Y., assignors to The Solvay Process Co., New York. A process for removing greasy deposits from concrete garage floors which comprises applying thereto a composition comprising o-dichlorbenzene containing dissolved therein between about 1 per cent and about 25 per cent of a substantially inorganic salt-free sulfonated detergent obtained by reacting the addition product of a mixture of olefins containing between 14 and 24 carbon atoms and derived from a petroleum source and a nitrosyl halide selected from the group consisting of nitrosyl chloride and nitrosyl bromide, said addition product containing a replaceable halogen, with sodium sulfite and removing inorganic salts, and then flushing the greasy deposits from the floors with water.

No. 2,403,619, Liquid Cleaning Composition, patented July 9, 1946 by George M. Skinner, Kenmore, N. Y., assignor to National Carbon Co., New York. A cleaning composition for removing sludge from internal combustion engines consisting of a homogeneous liquid mixture of a solvent composed of ethylene glycol monoethyl ether acetate and ethylene glycol monobutyl ether, in appreciable component proportions and in a total amount of about 50 per cent to 80 per cent by volume; a lubricating oil in an amount from about 15 per cent to 25 per cent; about 5 per cent to 25 per

(*Turn to Page* 148A)

Citronella Oil Test

A modification of the Schimmel Test for detecting adulteration of Ceylon citronella oil with fatty oils or petroleum has been proposed by the Essential Oil Subcommittee of the Society of Public Analysts in their Report No. 14 published in the English journal *The Analyst* (vol. 70, p. 442, 1945).

The original "Schimmel Test" was described in the Schimmel Report of October, 1889. By this test, citronella oil must give a clear solution with 1 to 2 volumes of 80 per cent alcohol at 20° C. and this solution must remain clear or may at most show a slight opalescence upon the addition of up to 10 volumes of 80 per cent alcohol. Even after being left to stand for several hours, no drops of oil may separate out from the solution. As subsequent experience showed that oils which had been adulterated with petroleum to a moderate extent could pass this test, it was modified by the requirement that the oil must give the same test after the addition of 5 per cent of Russian petroleum. This modified test is known as the "Raised Schimmel Test."

The report of the Essential Oils Subcommittee states that its members consider this test "unsatisfactory inasmuch as it is not sufficiently well-defined to give concordant results in different hands." They propose that it should be replaced by the following test, to be known as "The London Solubility Test."

"One volume of citronella oil should form a clear solution at 20°C. with from one to two volumes of 80% v/v alcohol, and, with a total of four volumes of 80% v/v alcohol, the solution should not be more than faintly opalescent and there should be no separation of oily drops on standing overnight in a stoppered cylinder at 20°C."

It will be seen that the London Test is essentially the same as the original Schimmel Test, except that it requires that the solution should remain free of oily drops on standing overnight at 20°C. instead of "several hours." The use of 4 volumes of alcohol instead of "up to 10" volumes makes little actual difference in the result of the test, since the maximum cloudiness usually appears on the addition of from 4 to 5 volumes of alcohol.

Accordingly, the Schimmel chemists see no advantage gained by the adoption of the test as proposed by the Essential Oils Subcommittee.

Soap Production Still Low

Under continued shortages of fats and oils and consequent restrictions by the government on the use of fats in making soap, manufacturers' deliveries of soap in the United States in the first half of 1946 were less in quantity than in similar periods in 1944 and 1945. A careful perusal of the data submitted to the Association of American Soap and Glycerine Producers, Inc., New York, by 70 manufacturers who make a substantial percentage of the soap produced in the United States shows that for the first half of 1946, these 70 manufacturers delivered to customers 1,223,968,000 pounds of soap other than liquid at a sales value of $182,057,000, together with 1,915,000 gallons of liquid soap at a sales value of $2.395,000. The total sales thus reported were $184,452,000. For 68 of the 70 reporting manufacturers whose figures could be compared, dollar sales in the first half of 1946 were less by 13.9% than in the first half of 1945. Sales in dollars for the second quarter of 1946 were less by 2.5% than in the first quarter of 1946 and 11.7% less than in the second quarter of 1945. Similarly, total pounds of soaps delivered other than liquid, in the first half of 1946 were less by 21.8% than in the first half of 1945. Total pounds of soap delivered in the second quarter of 1946 were less by 2.4% than in the first quarter, and less by 2.0% than in the 2nd 1945 quarter.

Lead Supply for Tubes Low

Manufacturers who market their products in lead collapsible tubes will find the industry continuing to feel the pinch resulting from shortages even though this use requires only 1.85% of the lead supply. According to a spokesman for the Department of Commerce, the decline in domestic production is resulting chiefly from a manpower shortage, and secondarily from curtailment of imports of lead now needed for rehabilitation abroad. The spokesman warned that recent increases in the price of lead by Great Britain may indicate the beginning of a period of severe price competition.

New German Detergent

"Tylose HBR," of which the effective ingredient is a sodium salt of cellulose glycollic ether, has been reported as an efficient and soap-saving detergent. The new detergent, which has been used to improve the washing qualities of synthetic cleansers, is described in a report now on sale by the Office of Technical Services, U. S. Dept. of Commerce. The report is based on findings of U. S. technical representatives who investigated German progress in detergents shortly after the war. The Germans claimed that the washing action of soap was improved by the addition of "Tylose HBR," and that the amount of soap used could be reduced to the extent of two and one-half to three times the weight of "Tylose HBR" used. The product is manufactured from pine or beach sulfite pulp. The pulp, in sheet form, is first steeped in caustic soda solution. It is then pressed, shredded, and mixed with sodium monochloracetate. Sodium bicarbonate is then added. Finally, the batch is ground

in a mill and packaged. Investigators recommend further study and testing of the product by the Office of the Quartermaster General and by American producers of soap and synthetic detergents. The report covering "Tylose HBR" is number PB-3865, available in photostat form for $5, and microfilm for $1. It contains 64 pages, and is obtainable from the Office of Technical Services, Department of Commerce, Washington 25, D. C.

New T. G. A. Specs

The board of standards of the Toilet Goods Association, Inc., New York, recently announced that specifications had been drawn up by the Scientific Advisory Committee for triethanolamine and for cetyl alcohol. Specification TGA 18, issued July 22, 1946, defines triethanolamine as a mixture of alkanolamines consisting chiefly of triethanolamine with variable amounts of monoethanolamine and diethanolamine. Color: Must meet buyers' specifications when tested by prescribed method; odor: not more than slightly ammoniacal; solubility: soluble in chloroform, miscible in all proportions with alcohol and water; specific gravity: 1.1204 to 1.1284 at 25°C/ 25°C; refractive index: 1.4800 to 1.4850 at 20°C; equivalent weight: 140 to 145; ash: 0.03% max.; lead: 1 ppm max. as Pb; arsenic: 1 ppm max. as As_2O_3; substances reacting with periodate: not more than 6.2 ml. of 0.1 normal iodine is required per 0.1 gm. of the sample used in the test. (T.G.A. method No. 23.)

Specification TGA 19, issued July 30, 1946, defines cetyl alcohol as a white unctuous mixture of solid alcohols consisting chiefly of $CH_3(CH_2)_{14}CH_2OH$. Solubility: soluble in ethanol, ether, chloroform, and toluene; melting point: 47° to 49°C; acid number: 0.5 max.; saponification number: 1 max.; iodine number: 3 max.; hydroxyl number 218 to 232; ash: 0.05% max.; lead: 1 ppm max. as Pb.; arsenic: 1 ppm max as As_2O_3; (Hydroxyl Number by T.G.A. method No. 24).

Cleaning Kit for Farms

Klenzade Products, Inc., Beloit, Wis., manufacturers of a specialized line of chemical cleaning products for dairy and farm sanitation, are offering to farmers a "Farm Kit" for cleaning milking machines and milking utensils. Included in the package are 1¾ lbs. of "Kleer-More," a new soapless cleaner; 1 qt. of "Nu-Kleen," for removal and prevention of milk stone; 1 qt. of "Klenzade X-4," for sanitization of milking equipment; two special brushes, and instructions for use.

Vaughn Visits Scandinavia

Dr. Thomas H. Vaughn, director of research for Wyandotte Chemicals Corporation, is one of a group of more than 20 American executives and scientists now touring Sweden, Denmark, and Norway. The tour will terminate September 7, after 18 days of inspection of industrial and educational research laboratories and manufacturing plants in the three scandinavian countries.

Wyandotte Expands

The Wyandotte Chemical Corp., Wyandotte, Mich., recently announced that a twenty-five million dollar pro-

E. M. FORD

gram of additions to its present plants will provide enough expansion and diversification to increase production by more than 30 per cent by 1948. After producing inorganic chemicals and cleaning materials for over fifty years, Wyandotte will enter the organic chemicals field on a large commercial scale. One phase of the company's new organics program will be the manufacture of glycols and related products, the other will be the production of synthetic detergents. A new plant for detergents will be completed by the fall of 1947 and will produce a product of the alkyl aryl sulfonate type. The company will market synthetic detergent along with its established products, caustic soda and soda ash, particularly for soap producers servicing consumers in hard water areas. The industrial market will be cultivated not only for the synthetic itself but also for cleaning compounds made from it. The program calls for the production of nearly 100,000,000 lbs. per year of the above-mentioned glycols and synthetic detergents.

Another phase of the expansion program includes increased capacity for almost all of the company's alkali products. Soda ash capacity will be stepped up by 15 per cent. The additional capacity will be by the ammonia-soda process already used at Wyandotte but including many improvements. Chlorine capacity will also be increased along with production of a special high quality caustic soda for the rayon industry. The chlorine and soda plants are expected to be finished in January, 1948.

In addition to the expansion already mentioned, E. M. Ford, president of the company, announced that larger facilities for the production of fine chemicals are being provided.

Vets Form Clay Company

The Blue Mountain Clay Co., Memphis, recently organized by four war veterans and financed by the R.F.C. and a commercial bank, will market an absorbent material and other new products this fall for use in machine shops, garages, hangars, by private automobile owners, and wherever oil on floors presents an accident hazard. The officers of the new company are: Leslie H. Buchman, president; Milton H. Smith, Jr., vice-president; V. Bruce Buchman, secretary and treasurer, and G. O. Thomas, director of public relations. The product, an oil, grease, and water absorbent, is produced from a unique alumina silicate material and is claimed to be capable of absorbing from 120 to 140% of its own weight. The material weighs up to 30 lbs. per cu. ft.

Correction on Mirapon RK

In our article on cream shampoos in the August issue of *Soap and Sanitary Chemicals* we referred incorrectly to "Mirapon RK Concentrate," a product of Miranol Chemical Co., Irvington, N. J., as a coconut fatty acid. The product is in reality a synthetic detergent of the sulfonated fatty acid amide derivative class.

W. H. Crawford Dies

Wilmer Hayes Crawford, age sixty-seven, head of the W. H. Crawford Chemical Co., Cincinnati, manufacturers representatives to the soap, paint, paper and varnish industries, died at his home in Avondale, Ohio, on August 5th. Mr. Crawford, one time chief clerk for Procter & Gamble, was vice-president of Isaac Winkler & Bros. until 1927 when he started his own business.

Dr. McCracken in New Post

Detrex Corp., Detroit, has announced the appointment of Dr. William L. McCracken, recently dis-

DR. W. L. McCRACKEN

charged from the Army Engineers with the rank of Lt. Colonel, to the position of administration assistant to C. F. Dinley, Sr., vice-president in charge of research and engineering. Dr. McCracken's new duties will provide administrative and technical assistance to Mr. Dinley in research and product development in the company's three major divisions: industrial metal cleaning, dry cleaning, and oil extraction. Prior to the war, Dr. McCracken had charge of research and development for oil extraction. He holds the degree of B.S. from the School of Mines and Metallurgy, Univ. of Missouri, M.S. and Ph.D. from Iowa State, where he worked as a research fellow until 1939 when he first entered the Detrex Company.

Rubber Companies Merge

A merger was recently announced that brought the Acme Rubber Mfg. Co. and the Hamilton Rubber Mfg. Co. into a new organization known as the Acme-Hamilton Mfg. Co., Trenton, N. J. The officers of the new company are: Albert M. Kahn, president; A. J. Kaminsky, executive vice-president and treasurer Peter Jenkins, vice-president, and Charles J. Gale, secretary. Mr. Kahn is also president of the Consolidated Products Co., New York, used machinery dealers.

SANITARY PRODUCTS

A SECTION OF SOAP

ACCORDING to the newspapers, the death of a New Jersey man recently was attributed to DDT. An official of the U. S. Public Health Service is reported to be making an investigation. Among DDT authorities, the belief appears to be unanimous that factors other than the use of DDT were responsible for the death. In fact, it would appear unusual that responsibility for the death could be assigned immediately or would be assigned by any local public official to a comparatively new chemical with the limited data which he could have had at his command. But the unfavorable publicity for products containing DDT still makes its appearance to injure a whole industry.

Several years ago, in response to a newspaper item blaming fly spray for the death of a New England woman, we checked into the matter. We tried to pin down the health official who made the statement and obtain the facts, but the official was more interested in keeping his skirts clear than in the truth. He refused to be pinned. From other sources, we found that the woman was aged and had heart trouble. While awaiting the USPHS report, we suspect also complications in the New Jersey case. And when the facts are found, we can assure the industry that NAIDM will lose no time in seeing that they are broadcast to the press.

FLY-BY-NIGHTS are reported offering scarce paradichlorbenzene at prices slightly more than double that quoted by leading manufacturers. Two such were recently turned up for our attention by a well-known sanitary products manufacturer who, hot under the collar, asks us just where these fellows are getting their stuff. Nobody seems to know who these operators are. In typical black market fashion, they operate over the phone and on a strictly COD basis,—and COD means cash and not a check. Para is only one of a hundred items in this class at the present time if the facts are true. The situation is a reflection of the times and the market. Come the dawn, and they will slink silently away.

FOR most household insecticide manufacturers, the 1946 "season" is over. In reality, for many products, there is no "season," the bugs being of a nature which makes a twelve-month market. But as far as the small-package spray business is concerned considerations now are of the 1947 market. Discussion both in and outside of the trade leads us to believe that many manufacturers are being guided more by what their competitors do than by the dictates of the market itself. If some of the leaders have put out two, or possibly three types of insect spray for the 1946 season, this is still no reason to follow them until they are proved right. And from what we have observed we are still from Missouri in this respect.

We feel that the space spray and the surface spray idea is not too well understood by the public and that they do not want to bother to understand it. From a limited number of observations, we have drawn this conclusion. We believe that it warrants some study by manufacturers,—and quickly,—before they commit themselves definitely for 1947. Of course, they have their 1946 sales figures to guide them to a degree, but any consideration of them will have to be modified by the amount of stock on dealers' shelves. Perhaps 1947 will be here too soon to get the answer. Nevertheless, a survey of the market now might give a helping hint as to the manner in which demand may develop in 1947. Thus far, we are not too certain that the industry is on the right sales track.

Which Floor Wax?

a discussion of the essential criteria of quality which should be kept in mind by the wax buyer

AMONG manufacturers of floor wax, and users as well, there is a great difference of opinion as to what constitutes a good floor wax. One manufacturer lays great stress on the fact that his particular brand is "high in water resistance," while still another apparently considers that point of such minor interest that he overlooks it entirely and "bears down" on the statement that his brand is "non-slippery." Still another is satisfied to present his product on such elementary points as that it is "easy to apply," or that "it dries to a gloss without polishing."

Now this, frankly, does not make sense, for with the possible exception of those few people who have had no experience with the product, we have all reached a point of understanding that tells us quite definitely that a floor wax that is really worth consideration must be well balanced in at least eight different points of quality. These points are listed below. If the product is out of balance in any one of these eight essentials it simply cannot be satisfactory.

We do not mean here that "price" is of the greatest importance merely because we place it in the number one position. Our feeling is that all of these points are of relatively equal importance and we propose to point out here how impossible it is to over-emphasize one point without throwing one, two or three other points out of balance.

No. 1 Price
No. 2 Slip Resistance
No. 3 Ease of Application
No. 4 Lustre
No. 5 Wear Resistance
No. 6 Dirt Resistance
No. 7 Water Resistance
No. 8 Chemical Composition

Let us now transpose this description of a well balanced floor wax to an understandable picture and demonstrate how each point takes a definite position in the balance of the whole, by drawing a circle and placing the eight points in position around it.

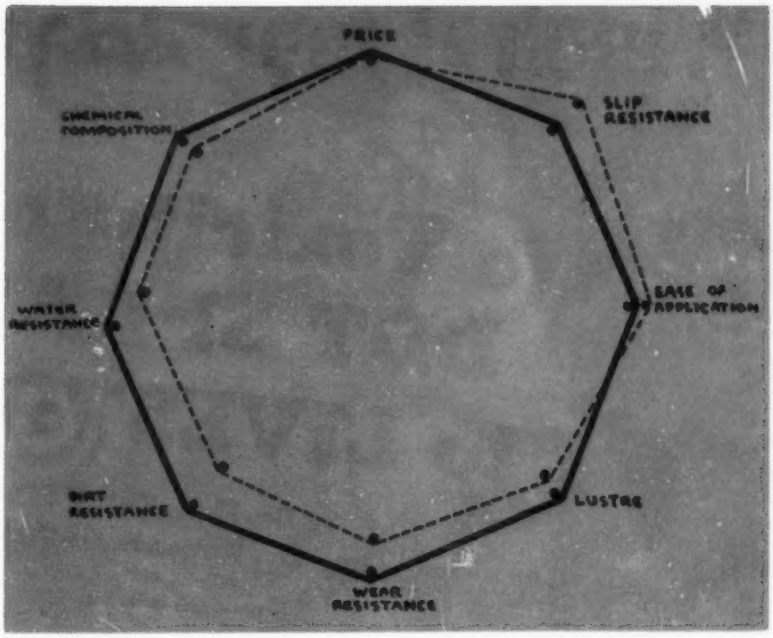
Suppose a manufacturer purposely or unintentionally over-emphasizes point No. 2, Slip Resistance, note the dotted line in our drawing and see how this detracts definitely from point No. 7, Water Resistance, and how it also affects point No. 8, Chemical Composition, and point No. 6, Dirt Resistance. The same thing takes place if one decides to over-emphasize point No. 5, Wear Resistance. This for example is very easily done by hardening up the film, but immediately this gives you a slippery film by detracting from point No. 2, Slip Resistance, so taking this whole picture into consideration, we can sensibly arrive at the fact that true quality in a water emulsion wax is a question of a correct balance among all of these eight points of quality.

A wax lacking any one of these important features can not be economical. Yet we find many users still making their choice of brands on the single point of "Lustre," and many manufacturers are apparently under the impression that if the product is "Easy to Apply" (point No. 3) and of "Good Lustre" (point No. 4) that it should be acceptable. I have interviewed many users of water emulsion wax who have been thoroughly disgusted with the product, merely because they have had experience only with brands that have been so badly out of balance that no one could hope to secure satisfactory results with them.

This confusion can be charged 100 per cent to wax manufacturers, rather than to consumers, for the industry has in so many cases offered poorly made products through poorly informed sales organizations. Thus we have failed to do our full duty in the correct education of the consuming public. It is not reasonable to assume that a consumer, in the person of a purchasing agent, or a building superintendent, who must deal with literally hundreds of maintenance materials and problems, should be an expert on all such matters. In many cases these men secure their knowledge of such products through such advertising copy as we write. If the sales presentation or the advertising copy are fundamentally wrong to begin with, then the responsibility can rest nowhere except upon the source.

While this industry was in its infancy, there was little one could do about this confusion, for the consumers had no dependable source

By Richards Jarden
Franklin Research Co.



of correct information. The rapid and wide public acceptance of water emulsion waxes invited a great number of miscellaneous manufacturers and merchants into the field. Many offered waxes as a side line, merely because their regular business was "on the rocks." Remember this product first came into prominence during the worst days of the 1929 depression.

Many brands were "over sold" on quality. Whether this overselling was a tendency on the part of the merchants or manufacturers to "take advantage," or merely the result of their own lack of understanding of the product is beside the question. It remains a fact that many brands were offered on the basis that they were "cure alls" and this misinformation has done the industry a lot of harm.

There is every reason to understand how during those confused days of 1929-40 a great deal of misunderstanding could have gotten into the hands of buyers and users, and to see how certain buyers and users could have innocently selected a brand that would give them an entirely wrong impression of the product. Anything short of glue that would dry to a gloss was looked upon as a "Self Polishing Floor Wax."

Very few manufacturers or users could see past points No. 1, 3 and 4. It was merely a question of No. 1 Price, No. 3 Ease of application and No. 4 Lustre. The Federal Government added their share to the confusion by coming out with a specification that stressed merely point No. 8 Chemical Composition. No one gave the least attention to such definite floor performance qualities as points No. 2-5-6 and 7.

Evolution began to take hold of the situation and there was a gradual but rather reluctant appreciation of point No. 5 Wear Resistance and point No. 7 Water Resistance that started just prior to the War. It has only been since 1943 that any real attention has been given to what we now consider the paramount point of quality, Slip Resistance.

Today we find the general public rather rapidly coming to understand that any water emulsion wax that is worthy of their attention must have all eight of the points of quality as listed here and that these points must be in good balance. Furthermore, there is now a growing tendency to check all of these points on the basis of comparative demonstrations before a choice is made. Fortunately one is able to call upon the help and guidance of certain well recognized experts in arriving at some of his conclusions. For example:

On point No. 2 Slip Resistance there is no better authority than the Underwriters' Laboratories, Chicago. Your casualty insurance company will recognize this organization as the highest authority on such a subject as "Safety." Decide, then that from a legal standpoint, i.e., for protection against suits and for the general protection of those people who walk over your floor surfaces, you will consider only such floor maintenance materials as are listed by the Underwriters.

On point No. 8 Chemical Composition, there is the question of whether the material may be harmful to the particular type of flooring upon which you will use it. Do not allow yourself to assume that your interest in Chemical Composition should go further and involve such details as the amount of solids, the melting point of solids and etc., for in reality you are interested in Floor Performance and thus if the material should prove to be made of cranberry juice rather than wax it should still be acceptable if it performs on the floor and if it does not harm the floor! The highest authority on this score would be the manufacturers of the particular type of flooring to be treated. Thus be sure that the product is acceptable by the Rubber Manufacturers Association if you have rubber floors, or the asphalt

(Turn to page 148C)

Toxicity of DDT SPRAYS to LIVESTOCK

by Dr. H. S. Telford*
and Dr. James E. Guthrie

Dr. Hess & Clark, Inc.

TOXICOLOGICAL investigations on DDT have been confined largely to studies of acute and chronic toxicity, to pathological findings and to the mode of elimination in laboratory animals. The possibility of DDT being absorbed in toxic quantities through the skin of animals sprayed with the insecticide, was suggested by the work of Smith and Stohlman, as well as Draize and his associates. These workers showed that DDT dissolved in oil could be absorbed through the skin of rabbits, white rats, guinea pigs and possibly dogs. Since DDT will undoubtedly have widespread use as a toxicant in livestock fly sprays, dips and louse powders, studies on its effects upon dairy cows and goats were undertaken.

Cow Spraying Tests

Two purebred Holsteins in similar periods of lactation were sprayed twice daily from Monday through Friday at 8:00 A.M. and 5:00 P.M. with a *Lowell* hand-operated fly-sprayer for 12 consecutive weeks. No sprays were applied on Sundays and only one spray was applied on Saturday mornings. One hundred cc. of spray was applied at each spraying. A different spray was used on each animal, one containing 10 per cent DDT, the other (control) containing the identical amounts of solvents and emulsifiers without DDT. The spray formulae were as follows:

percentage by weight

Velsicol AR 60[1]	44
Water	40
DDT	10
Pine oil (*Yarmour*)	6

Percentage by weight

Velsicol AR 60	44
Water	50
Pine oil (*Yarmor*)	6

To each formulation was added a small amount of *Triton X*-100[2] or *Vatsol OS*[3] as emulsifiers.

Hemoglobin determinations, as well as white and red cell counts were made at weekly intervals. The blood picture was followed further by differential counts. Milk records and body temperatures were recorded twice daily. The animals were weighed before and after the experiment.

Experimental Results

Hemoglobin determinations and white and red cell counts suggest no seriously detrimental effects of the sprays upon either animal. The animal which received the DDT spray had a higher leucocyte count during the last week of the experimental period. This leucocytosis prevailed until the last examination, four weeks later. This condition has been associated with DDT intoxication (Draize et al.), however, in the absence of other symptoms, it is questionable whether this condition can be ascribed to the effects of DDT. A differential examination of stained smears indicated no significant shift in the blood picture.

A summary of the milk yields in both subjects is given in the accompanying table (No. 1). With the exception of a slight drop in milk production in both animals during the first week

* Before Natl. Assn. Insecticide & Disinfectant Mfrs., French Lick, Ind., June 17, 1946.

[1] A polymethalated naphthalene.

of spraying, the milk declines appear normal.

No skin irritation was observed, nor were there any symptoms of intoxication during the time the experiment was in progress. The coats of both animals were very oily during the experimental period and remained in this condition for sometime afterwards. There was no appreciable weight change in either animal. Both the cows gave birth to normal young 3½ and 7 months after the sprayings were terminated. No definite evidence was secured under the conditions of this experiment to indicate that any harmful effects resulted from the treatment.

Goat Spraying Tests

Excessive quantities of DDT sprays in emulsion form were also applied to goats to determine whether enough DDT could be absorbed through the skin to produce toxic symptoms. It was felt that a more accurate picture of DDT absorption through the skin could be obtained with goats since these animals, unlike cows, are not in the habit of licking themselves, thus the chance for extraneous oral ingestion of DDT is largely eliminated. The experimental design on goats was similar to that employed on cows. Three female goats were used. One (No. 205) served as a control. This animal received an emulsion which did not contain DDT, while the other two subjects received DDT emulsions. The spraying schedule, rates of application, and formulae employed are shown in table 2. Hemoglobin determinations, white and red cell counts, and weights were taken weekly. Body temperatures were recorded daily and Post-mortem examinations were made.

Experimental Results

Unfortunately during the 12th week of spraying one subject receiving DDT (No. 189) was stricken with pregnancy disease, probably caused by lack of exercise and too close confinement during pregnancy. As her condition became worse, a caesarean section was performed as a last resort to save her. Two kids, probably two weeks immature, were delivered. Both died soon afterwards, each exhibiting tremors and convulsions, suggesting DDT intoxication. The mother died the morning following the operation. She showed no symptoms which would indicate DDT poisoning during the experimental period. The two remaining goats were sprayed an additional five weeks before they were sacrificed.

Hemoglobin determinations and white and red cell counts of these animals appeared normal. All subjects gained weight during the experimental period. No skin irritation, or symptoms of DDT intoxication were observed.

Post-mortem Examination

At necropsy, subject No. 189, receiving DDT, which had died following the caesarean operation, looked as if she had been off feed for some time. The body fat showed some necrosis. The liver was very soft, light colored, and had a "cooked appearance." The gall bladder was enlarged and had a catarrhal inflamation. The spleen was normal in size, but somewhat soft. Both kidneys were soft, slightly mottled, light colored, and had a cooked appearance. The capsule was easily stripped. The tubules appeared as if they were full of urates. The cerebrum was normal. The meningeal covering of the cerebellum was slightly congested.

Just how much of the above condition could be attributed to the DDT spray cannot be stated, since the picture was complicated by the pregnancy toxemia. The control animal (No. 205) and the other goat (No. 214) under DDT treatment showed no macroscopic pathological changes in their organs at necropsy.

Since the two kids delivered from No. 189 by caesarean section died with tremors, suggesting DDT intoxication.

(*Continued on Page* 133)

Table 1
Milk Yields of Two Cows, one Receiving Sprays of a 10% DDT Emulsion the Other (Control) Receiving a Non-DDT Emulsion.

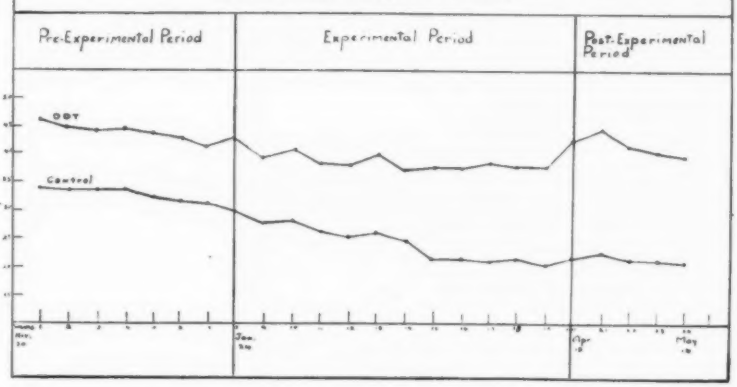


TABLE 2—Spray Schedules and Formulae Employed in Goat Spraying Experiments

Animal designation	*per cent DDT*	*Amount of spray per application cc.*	*Number of sprayings per week*	*Duration (weeks)*
No. 214 wt. 35 lbs. young female	5	50	11	12
	10	75	6	5
No. 264 wt. 139 lbs. female	10	150	11	8
No. 189 wt. 156 lbs. female, pregnant	5	150	11	2
No. 205 wt. 43 lbs. young female (Control)	0	50	11	12
	0	75	6	5

[2] A polyethylene glycol monoisocetylether.
[3] A sodium salt of an alkyl naphthalene sulfonic acid.

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Manufacturers of Chemicals including Synthetic Insecticides . . . Fungicides . . . Plastics . . . Enzymes . . . Chemicals for the Leather, Textile and other Industries

BRANCH OFFICES: CHICAGO · KANSAS CITY, MO. · OAKLAND & SOUTH GATE, CAL. · P. R. EDDEN & CO., LTD., MONTREAL AND TORONTO, CANADIAN DISTRIB

Toxicity of Aerosols

Rate of movement through and height of suspension in a toxic aerosol influences mortality of caged house flies

By E. R. McGovran and J. H. Fales[1]

United States Department of Agriculture, Agricultural Research Administration, Bureau of Entomology and Plant Quarantine

IN tests with aerosols generated by liquefied gas for control of insects in large spaces, such as school auditoriums, dining halls, and factories, it was noticed that they were more toxic than was expected. The expectation was based on prior tests made in a small room with a capacity of 1,140 cubic feet[2]. Along the walls and over the windows, where the insects were present most of the time, there was often considerable movement of the air laden with aerosol. This movement might be in any direction, but was usually upward or downward depending upon the relative temperature of the walls, ceiling, windows and the air in the room, the operations of fans, the direction of the wind, the tightness of the windows, and possibly other factors.

To obtain some data on the effect of movement on the toxicity of aerosols, many experiments were made in the course of a year to compare their effectiveness against free-flying houseflies with that against houseflies in cages moved at various speeds. The results of only the final series of experiments, which were based on data obtained from preliminary tests, are presented in this paper.

Materials and Methods

The tests were made in a Peet-Grady chamber (216 cubic feet) with houseflies (*Musca domestica* [*L.*]) as the test insect. The flies were confined in cylindrical, 16-mesh wire-screen cages 2.3 inches in diameter and 8 inches tall. The various speeds of movement were obtained by attaching the cages to a rotating arm that moved in a horizontal plane 3 feet above the floor of the test chamber.

The aerosol solution used in all tests contained 2 per cent of pyrethrum extract (20 per cent pyrethrins), 8 per cent of sesame oil, and 90 per cent of "Freon-12" (dichlorodifluoromethane), by weight. The aerosol was discharged horizontally from a laboratory dispenser[3], located 6 inches below the ceiling, and was directed so that the mist at the time of discharge did not envelop the cages. The movement of the cages was started immediately after the aerosol had been discharged. The chamber was kept closed for 3 minutes. The exhaust was then opened and started at a slow speed (150 cubic feet per minute), and the ports in the lower corners of the chamber were opened. Ten minutes after the aerosol was discharged the flies were removed from the chamber and placed in clean recovery cages containing liquid food. Mortality counts were made 24 hours after treatment.

Free-flying houseflies were released in the chamber when there were no moving cages present, as these cages undoubtedly would have created air currents and also stimulated the insects to abnormal activity, increased or decreased according to whether the insects attempted to escape or hide. In these experiments the free-flying houseflies were exposed to dosages of 2 and 10 grams of aerosol solution per test.

In an experiment to determine the effect of an increase or decrease in the normal movement of houseflies, the insects were moved at speeds of 1.25, 2.5, 5, 10, and 20 m.p.h. The tests at 1.25 and 2.5 m.p.h. were run simultaneously, as were those at 5, 10, and 20 m.p.h. At all speeds the cages were exposed to two dosages of aerosol solution, the tests at 1.25 and 2.5 m.p.h. to 2.5 and 12 grams, and the tests at 5, 10, and 20 m.p.h. to 0.5 and 2.5 grams.

In another experiment to determine the effect of caging flies at various levels in the test chamber, stationary cages were placed at three different positions in the chamber. In the "high" position the cages were suspended by cords from the ceiling of the chamber at 5 feet from the floor, in the "middle" position they were suspended at 3 feet from the floor, and in the "low" position they were placed on the floor. The dosages of aerosol solution released were 2, 10, and 15 grams per test, and each dosage was tested at the different levels simultaneously.

Since it was believed that the results obtained in the experiments were

[1] This work was financed mainly by a transfer of funds, recommended by the Committee on Medical Research, from the Office of Scientific Research and Development to the Bureau of Entomology and Plant Quarantine.

[2] Sullivan, W. N., L. D. Goodhue, and J. H. Fales. 1942. Toxicity to adult mosquitoes of aerosols produced by spraying solutions of insecticides in liquefied gas. Jour. Econ. Ent. 35: 48-51.

[3] McGovran, E. R., J. H. Fales, and L. D. Goodhue. 1943. Testing aerosols against houseflies. Soap and Sanit. Chem. 19(9): 99, 101, 103, 105, and 107.

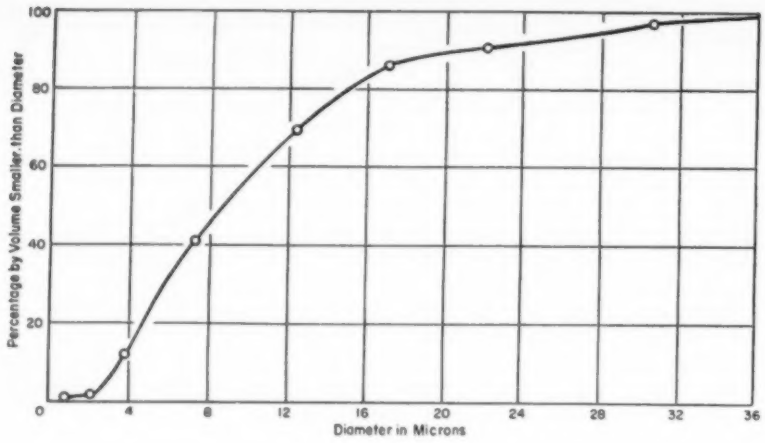


Figure 1—Distribution of aerosol droplets of different particle sizes.

due to the size of droplets formed by the aerosol solution used, the distribution of droplets of different particle sizes[4] was determined by microprojection.[5] Figure 1 gives the distribution of droplets of various sizes in the aerosol used in these experiments.

To determine the resistance of the flies used in this investigation, a spray test was made by the usual Peet-Grady method on the days the experiments were conducted. An average mortality of the flies in four tests using the O.T.I. (approx. 1 mg. of pyrethrins per milliliter of deodorized kerosene) was 41 per cent, which indicates that the insects used were in the middle range of resistance to this insecticide.

[4] The data on particle size were supplied by L. D. Goodhue and associates of this Bureau.

[5] Goodhue, L. D., and R. L. Riley. Particle-size distribution in liquefied-gas aerosols. Jour. Econ. Ent. (in press)

Discussion and Results

THE mortalities of houseflies moved at different speeds are summarized in the freehand curves in figure 2. Each point is the average of 12 tests. These curves show that at low dosages the aerosol was less toxic to the caged insects moved at 1.25 and 2.5 m.p.h. than to the free-flying insects, but that at high dosages it was more toxic. This variation in toxicity was probably due to caging and the paralytic or knock-down effect of the pyrethrins.

At a dosage of 2.5 grams a slightly lower mortality was obtained with a speed of 5 m.p.h. than with speeds of 1.25 and 2.5 m.p.h. It appears, however, that if this curve were extended by extrapolation the 5-m.p.h. speed would give higher mortalities at dosages of 4.75 grams and above than the 1.25-m.p.h. speed or the free-flying insects. On this basis, at a dosage of 12 grams mortalities at the 5-m.p.h. speed would almost equal those at the 2.5-m.p.h. speed.

The reason for the lower kill at 5 m.p.h. appears to be the removal of aerosol from the air by the moving apparatus, including the cages and insects. In the series of tests at 1.25 and 2.5 m.p.h. the distance traveled by the four cages in each test was 1.25 miles. In the series of tests at 5, 10, and 20 m.p.h. the distance traveled by the six cages in each test was 11.6 miles, about 9.3 times the distance traveled by the cages at the lower speeds. In addition, the greater speeds forced the deposition of smaller drops of insecticides on the apparatus as well as on the insect. There was a visible deposit on the cages moved at 20 m.p.h.

Even when more of the material had been removed from the air by the cages traveling at 5, 10, and 20 m.p.h., the 10- and 20-m.p.h. speeds were more effective than the normal flight of the insects at the lowest comparable dosage (2 grams), and at higher dosages the effectiveness of the higher speeds increased rapidly. A greater increase in the percentage of dead flies was evident when the speed was raised from 5 to 10 m.p.h. than when it was raised from 10 to 20 m.p.h. Indications are that speeds higher than 20 m.p.h. would not give proportionately greater increases in kill.

The curve for free-flying insects has a very gentle slope, probably because of the rapid paralytic action of the high concentration of pyrethrum. While the flies are actively flying they contact many droplets of aerosol. Once they are knocked down, however, the only droplets of aerosol that the insects contact are those that settle upon them on the floor. As a result of this paralytic action, the rate

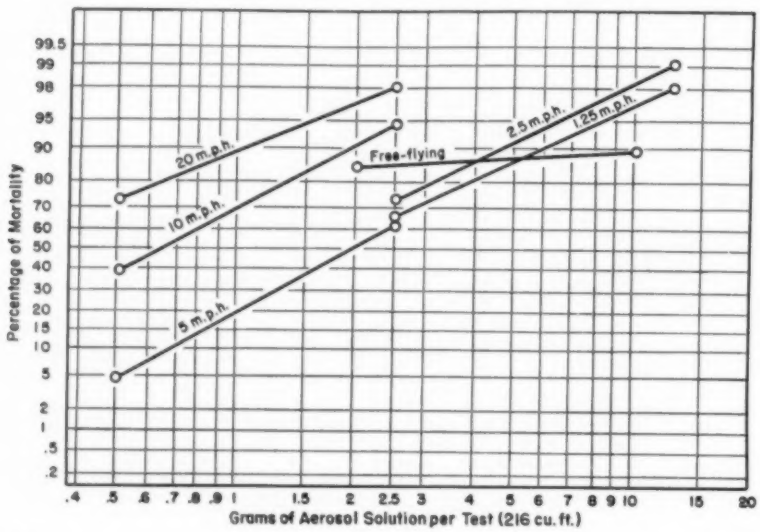


Figure 2—Mortality of houseflies moved at various speeds through an insecticidal aerosol.

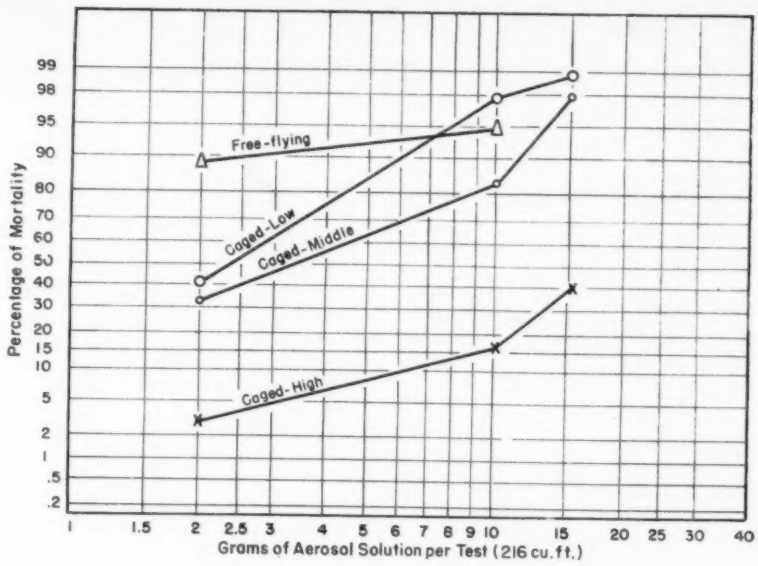


Figure 3—Mortality of free-flying houseflies and flies in stationary cages at different levels in the test chamber.

of increase in mortality of free-flying flies is reduced when higher concentrations of pyrethrum are used. This effect may be masked when the insects, whether they are active or paralyzed, are moved through the air.

Many tests not described here have shown that in general with 1 gram of this aerosol solution in the Peet-Grady chamber the mortality of free-flying houseflies was around 55 to 65 per cent and with 0.5 gram from 35 to 45 per cent.

Figure 3 shows the effect of caging flies at different levels in the test chamber. Each point represents the average of six tests. The flies in cages at the high and middle levels were not killed so readily as the free-flying flies. At the low level, at a dosage of 2 grams, the kill of caged flies was lower than that of the free-flying flies; at 10 grams it was higher. The reduced activity caused by knock-down at higher concentrations of pyrethrum may have had a greater effect on the mortality of free-flying flies than of caged flies.

The slope of the dosage-mortality curve was steeper for the flies in stationary cages than for the free-flying insects. This indicates that movement through the air is not alone responsible for the increased kill of caged flies. Another factor that may be important is the contact of the feet of the insect with the insecticide deposited on the screen of the cage. Flies spend a much larger portion of their time walking or running when confined in a small cage than when released in a Peet-Grady chamber. The flies congregate and crawl on the screen tops of the cages. This area probably received a much heavier deposit than the sides of the cage. Furthermore, the flies on this screen are exposed in a manner to receive the maximum number of droplets that settle through the screen. The flies also frequently crawl over each other, transferring insecticide from the feet of one fly to the body of the other.

Flies in cages moved through untreated air were not affected by the different speeds.

Figures 2 and 3 show that a marked change in the toxicity of the aerosol was obtained when the normal movement of the flies was changed, the mortality increasing when the speed of the flies was increased. However, when cages were moved through the aerosol at a rapid rate the screen surface reduced the toxicity of the aerosol. From this it appears that, under the conditions of the investigations, the movement of air carrying aerosols will increase the toxicity of the aerosol, but if the movement is too rapid the toxicity will soon be reduced owing to deposition of the insecticide on exposed surfaces.

In every case, whether the insects were moved at 1.25 or 20 m.p.h., the dosage-mortality curve was much steeper for the insects moved through the air mechanically than for those permitted their natural activity.

The tests with insects in stationary cages show that the position of the cage is a major factor in the degree of mortality obtained and that the dosage-mortality curve is much steeper for the caged insects. In all probability these effects are due to the settling of the droplets of insecticide. For this reason different sizes of aerosol droplets would probably cause different mortalities of insects confined at the same level.

Summary

A METHOD of determining the effect of rate of movement on the toxicity of aerosols to houseflies (*Musca domestica* L.) is described. The effect of changing the rate of movement of insects in aerosols is discussed. Changes from the natural rate of movement of the insects affected the kill. Confining insects in moving cages reduced the mortality at low dosages and slow speeds but increased it at high dosages and high speeds in comparison with the mortality of free-flying houseflies. A dosage of 2.5 grams of aerosol caused 65 per cent mortality at 1.25 m.p.h. on caged flies, as compared with 85 per cent mortality for free-flying flies. The slope of the dosage-mortality curve was much steeper for the caged insects. In the range tested, quadrupling the dosage increased the kill of flies an average of 36 per cent for insects in cages in motion and 3 per cent on free-flying flies.

The level at which stationary cages of insects were suspended in the test chamber filled with aerosol had a marked effect on mortality. At a 10-gram dosage of aerosol, mortalities of flies caged at low, middle, and high levels were 98, 83, and 16 per cent as compared with 94 per cent for free-flying flies. The dosage-mortality curves were steeper for flies in stationary cages than for free-flying-flies.

Testing the Germicidal Activity of QUATERNARY AMMONIUM COMPOUNDS

By Dr. Herbert Bernstein, Solomon Epstein and Jack Wolk,* The Emulsol Corporation

THERE is increasing interest in quaternary ammonium disinfectants both from the point of view of the manufacturer and users. The large number of publications and investigations dealing with the evaluation of these compounds is an indication of this increasing interest. Those who have used laboratory methods for testing the quaternary ammonium compounds especially by the "phenol coefficient method" of Dept. of Agriculture Circular No. 198 have universally encountered wide variations in results between laboratories and even in the same laboratory.

It has been pointed out that the variations are due to a multitude of factors which often do not affect the phenol standard. These variations include strength of media for transferring cultures and subculturing, the nature of the ingredients, the size of loop, the method of measuring the medication and innoculum, etc. The general opinion among bacteriologists, is that the "phenol coefficient" method is not an accurate and reproduceable means for evaluating quaternary ammonium germicides. Klarmann, Hucker, and others have repeatedly pointed out that there are many weaknesses in the method.

The NAIDM Disinfectant Committee has been working diligently to improve the method by eliminating variables in media and other means. One thing must be borne in mind, however, with reference to new and modified methods. The mode of action of quaternary ammonium compounds on bacteria is not the same as phenol. Therefore, a unit killing dilution standard as previously recommended by the Disinfectant Committee of the NAIDM is definitely desirable. One of the recent suggested methods uses the time required to kill a standard test organism in the maximum non-irritating concentration. The work of Whitehill gives a new concept as to what one may expect functionally of a dilution of antiseptic that will not irritate the eye. The antiseptic in question is then usable on the hands of a dishwasher or cows' udders before milking in a non-irritating yet germicidal concentration.

It should not worry us that a worker in the laboratory cannot tell us how to use a material in practice. In the development of every science theory has always lagged behind practice. The organic chemist was running reactions a hundred years before the physical chemist told him that they were thermodynamically feasible. If the practitioneers of the sanitary art have evidence that they have a wonderful new tool at their disposal, there is no reason why they must wait for the bacteriologist, working under conditions vastly different than those met with in practice, to tell them how to use this tool.

The quaternaries are a wonderful new tool. They are potent, one of the latest to be introduced, "Emcol 888," having a phenol coefficient of the active ingredient of 600 against *E. typhi* and 800 against *S. aureus*. (As tested by the standard procedure.) Many are odorless, non-irritating, nontoxic, and perfectly applicable to the most exacting food plant. Most are detergents, a few being extremely effective as cleansing media. Phenolics cannot make this boast. Why then compare the action of quaternaries against phenol? Each has its own sphere of influence.

It is the purpose of the authors here to suggest a concept of evaluation for disinfectants that are to be used, for example in the food processing and consuming industries. This requires that the compounds be safe to use on food utensils, milking machines, operators' hands, the food in process itself, processing equipment, etc. This automatically eliminates the phenols, cresols, mecurials, dyes, and other relatively toxic substances.

Inasmuch as the workers in the field agree that bacteriological laboratory methods are inadequate and not duplicable, the logical step is to consider what the material will do under conditions of actual use. A purchasing agent or clean-up man in an organization cannot determine what the product will do to the quality improvement of the food he produces or sells from the phenol coefficient on the label.

The chlorine industry, by nature of the material itself, has never been worried about either the phenol coefficient of chlorine or the laboratory methods for evaluation. As a result that industry has established what 100 ppm or 200 ppm or 50 ppm will do in certain operations, and even the U.S.P.H.S. recommends and accepts this type of standard for dishwashing, dairy sanitation, etc. The buyers and sellers of hypochlorite materials have

* Before Natl. Assn. Insecticide & Disinfectant Mfrs., French Lick, Ind., June 19, 1946.

POWCO BRAND

ANTU SCOOPS AGAIN!

Yes, there's bad news in Rodentville tonight. Antu's here and Powell's got it — plenty of it! No other rodenticide gives you all these Powco Brand Antu advantages—

1. Effective as a CONTACT poison.
2. Economical; works in small dosages.
3. Acceptable to rats.
4. Non-irritating to the skin.
5. Grey color. Meets state and federal requirements.
6. Biologically tested before shipment.

This sensational new rat killer — alpha naphthyl thiourea — is the most lethal, most acceptable rodenticide ever developed. It is comparatively safe to humans. It is easy to handle and easy to use. Standard bait formulas require as little as 1 to 3% concentrations. Powco Brand Antu is standardized biologically and chemically for your protection.

As a contact poison, Powco Brand Antu can be packaged in dust guns or shaker top cans. Dusted in rat burrows, holes — wherever rats are in evidence — Antu is quick (12 to 48 hours), deadly and effective.

Powco Brand Antu is ready for delivery in 5, 10, 25 and 100 lb. containers. Write, wire or phone for a generous sample and technical bulletin today.

JOHN POWELL & CO., INC.

ONE PARK AVENUE, NEW YORK 16, N. Y.

SALES OFFICES
350 N. Clark Street, Chicago, Ill.
503 Market Street, San Francisco, Calif.
Grant Bldg., Pittsburgh, Pa.
5th & Chestnut (Drexel Bldg.) Philadelphia, Pa.

CANADA
Charles Albert Smith Ltd., 123 Liberty Street, Toronto
Charles Albert Smith Ltd., 111 Port Street, Montreal

• • •

consequently been trained to buy and sell on a concentration basis.

In other words, it is of more importance for users of germicides to know what the material they are buying will do in their plants, and in what dilution, than to have the phenol coefficient data of the material. After the proper concentration has been established for a particular sanitizing job, all the user or the inspector has to worry about is a quick method for checking the strength of the solutions for purchasing and use specifications. In the chlorine industry any number of test methods are used and incorporated into easy-to-use kits. The same is true in the quaternary ammonium disinfectant field.

THE authors realize that this sort of discussion would be purely philosophical without some sort of a concrete program suggestion to the industry. As long as the subject is still open, the following approach is recommended.

Let us take a particular operation in an industry. Under average conditions, determine by repeated trials how much of the particular agent is required to reduce the total bacteria count the given percentage that is considered desirable by that industry. This, of course, demands that pathogens be eliminated within a safe degree. For example in the dairy industry, there are standards for Grade A milk between 20,000—30,000 total viable organisms/cc. It is not important to have sterile milk although the *E. coli* count should be practically nil. In the final flushing of the dairy plant system with a germicide, it can be established that a certain minimum concentration of X product will sanitize the equipment so that the average bottled milk after pasteurization will maintain a certain average total viable count and a maximum *E. coli* count. On cows' udders *Brucella abortus*, on eggs and egg products, *E. coli* and on dishes *E. typhosa* would be typical studies. These studies, of course, should be conducted in cooperation with the technical committees of the industry in question, the various governmental agencies, the National Sanitation Council, and the National Association of Insecticide & Disinfectant Manufacturers.

The results of these evaluations could be tabulated in terms of

E. typhi, *E. coli*, etc. } dairy, egg, dish } units per ounce

The unit can be definied as that amount which when diluted to one gallon will do a given job. Thus, if it has been demonstrated that a given quaternary when diluted one ounce to four gallons, and used as a sterilizing rinse in milk lines, will eliminate the presence of coliform bacteria in the milk, then that product may be said to have four *E. coli* dairy units per ounce. The dilution factor will then be one ounce to four gallons. This procedure is not particularly startling. Vitamins are sold in essentially this same manner.

In summary, since the phenol coefficient method fails to give the user of quaternary ammonium compounds a true performance evaluation of these materials, it is recommended that the industry adopt a performance function unit based upon actual large scale tests in those industries where bacteriological controls are imperative. With means of checking the strength of working solution in the field at their disposal, the inspectors and operators can control the use of the material properly. It is hoped that the manufacturers, compounders, users, governmental agencies, and the NAIDM will initiate projects to ascertain these performance use levels.

References

Brewer, C. M., "Variations in Phenol Coefficient Determinations of Certain Disinfectants, "Am. J. Pub. Health, *33*, 261-264, 1943.

Klarmann, E. G., "Disinfectants and Antiseptics," *Soap and Sanit. Chem.*, *20*, 109-117, 1944.

Klarmann, E. G., and Wright, Eleanor S., "Effect of Organic Matter on Germicidal Performance," *Soap and Sanit. Chem.*, *20*, 103-05, 1944.

Ruehle, G. L. A., and Brewer, C. M., "U. S. Food and Drug Administration Methods of Testing Antiseptics and Disinfectants," *U. S. Department of Agriculture Circular 198*, 1931.

Pressman, R., and Rhodes, J. C., "Sources of Error in Germicidal Activity Tests with Quaternary Ammonium Compounds," *Soap and Sanit. Chem.*, *22*, 137-143, 1945.

Brewer, C. M., *Journ. Am. Off. Agr. Chem.*, *27*, 554, 1944.

Rahn, O., *Biodynamica*, *5*, 1, 1945.

Anderson, L. P., and Mallman, W. L., *Mich. Agr. Exp. Sta. Tech. Bull. No. 183*, 1943.

Tobie, W. C., and Ayers, G. B., *Journ. Bact.*, *47*, 109, 1944.

Welch, Henry, Private Communication, May 14, 1946.

TOXICITY OF DDT

(*From page* 125)

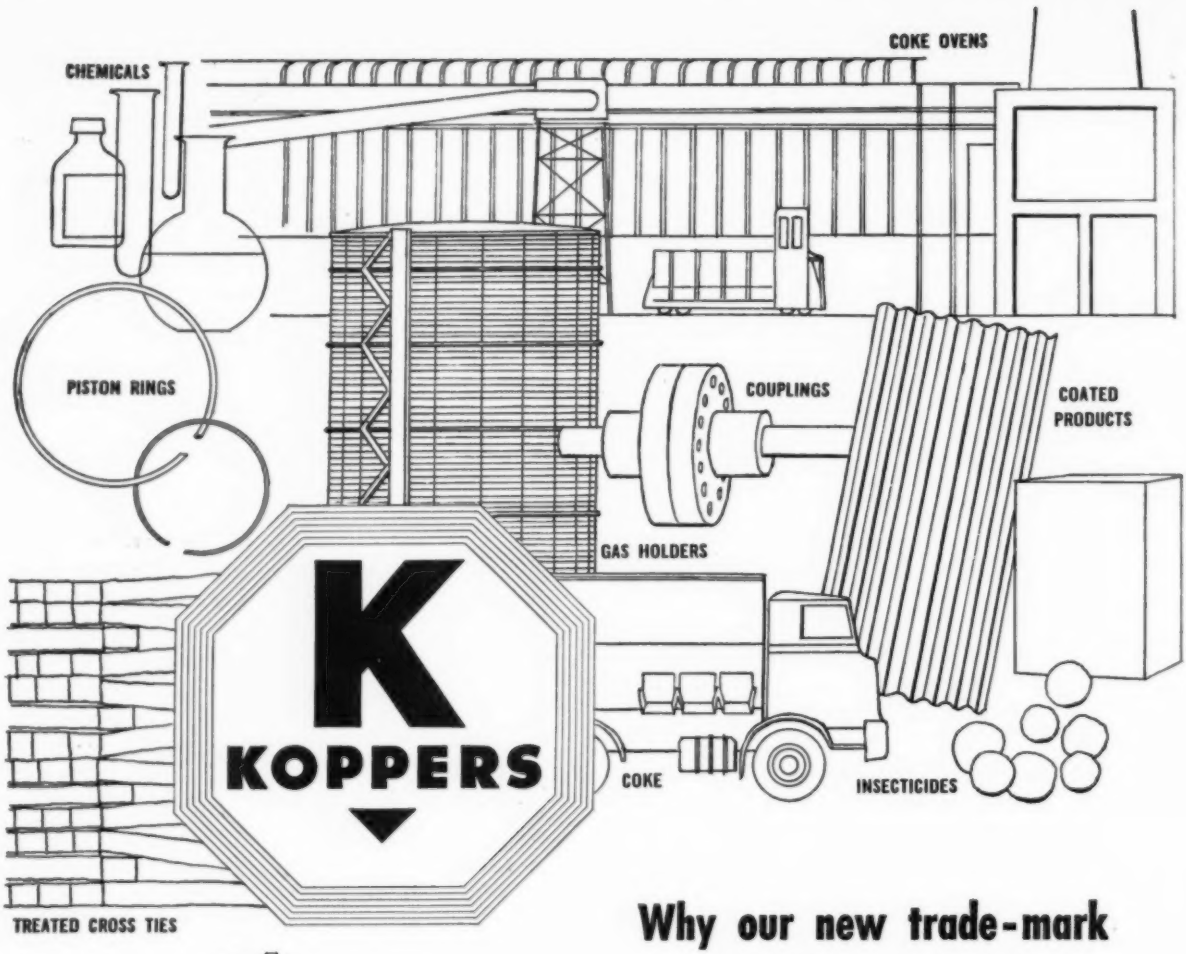
another pregnant animal (No. 264) was subjected to 150 cc. of a 10 per cent DDT emulsion 11 times weekly for three weeks prior to giving birth to two kids. Both offspring died within 48 hours, exhibiting tremors and convulsions. Suspecting that the young may have become poisoned by the milk of the mother, a week-old kid was allowed to suckle her. The mother readily adopted the kid and the sprayings were continued for 6 additional weeks. With the exception of considerable loss of hair in the foster mother, both subjects appeared normal during this period. The blood picture of this animal appears normal with the exception of a lower hemoglobin content following parturition. Draize and his coworker also found an occasional fall in hemoglobin in rats following administration of DDT.

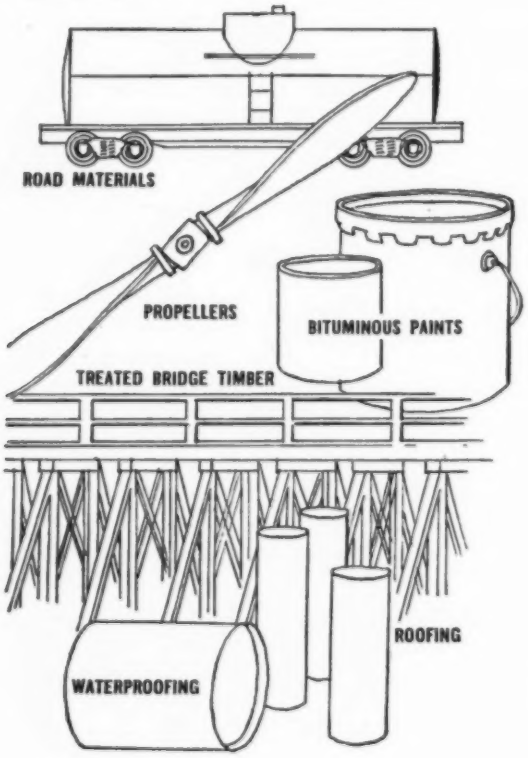
There is a suggestion from these data that excessive amounts of DDT emulsions applied as sprays, over extended periods of time, may have some detrimental effects on the fetus. However, the possibility of the solvents causing this trouble was not ruled out, since the control animal (No. 205), which received no DDT, was not pregnant during the experiments.

The author wishes to acknowledge the active assistance of Dr. James E. Guthrie, research veterinarian of Dr. Hess & Clark laboratories for invaluable assistance in all phases of these observations.

Copper Fungicide

The components of a copper soap are caused to react with each other in the presence of aqueous ammonia. On drying, this product will be free of water-soluble constituents. L. Roon, to Nuodex Products Co. Canadian Patent No. 433,579.





Why our new trade-mark is important to you

Every day, you place your health, your safety, your children, even your life at the mercy of manufacturers whose products you trust.

Often you do it because of some small mark which doesn't actually say anything in words, but which says volumes in the meanings you read into it.

That's what trade-marks mean to the American people. In effect, the trade-mark says, "Here is a manufacturer who is so sure of this product that he puts his name on it."

That's why our new Koppers trade-mark is important to you.

There are dozens of Koppers products; there will be dozens more as opportunities expand in the rapidly growing chemical field.

Often you will not be able to see the Koppers label on those products—you can't see it, for example, on road paving material or on a bottle of medicine—but the roadbuilder sees it and the medicine maker sees it, and their confidence in it is your safeguard.

Koppers also is well known as a dependable source for many other products and services which we furnish directly, such as the design and construction of coke ovens, roofing material, piston rings, couplings, propellers for your private plane, coke for your furnace, moth balls for your clothes, paints, pressure-treated wood and scores of others.—Koppers Company, Inc., Koppers Building, Pittsburgh 19, Pa.

KOPPERS—THE INDUSTRY THAT SERVES ALL INDUSTRY

Sabadilla Insecticide Development

DURING the war years, the reduction in the import of pyrethrum and rotenone, especially from Africa and the Far East, led to a serious effort in the United States to develop replacements particularly by materials indigenous to Central and North America. Important to this effort has been the research carried on in the past few years by the University of Wisconsin's Department of Economic Entomology on the commercial development of insecticides containing sabadilla. Sabadilla is a seed of the species of Schoenocaulon, a plant belonging to the family of Liliaceae. The plant looks like barley and is found in some twenty species in the United States, Mexico, and South America, growing as a non-cultivated crop. At present, we are largely dependent upon Venezuela for the importation of sabadilla seeds. In past years, sabadilla was not considered a sufficiently potent killer for incorporation into modern insecticides.

Intensifying Toxicity

The first experiments performed at the University of Wisconsin were directed toward intensifying the toxicity of sabadilla. This toxicity was known to be associated with the various alkaloids of the veratrine group, known as cevadine, veratridine, sabadilline, and sabodine, which were found mostly in the endosperm, embryo, and coat of the seed. It was soon found that in the extraction of the ground seeds with kerosene, an extraction period of one hour gave a powder with the maximum toxicity to the common house fly. It was also observed that extracts prepared from seeds which had been in the powdered state for some time possessed greater toxicity than extracts from freshly ground seeds. Higher temperature extraction, i.e., 150°C. at a maximum, also was found to increase the toxicity of sabadilla extracts. Heating the seed prior to extraction to 150°C. for one hour intensified toxicity about the same as did hot extraction. This treatment is covered by U. S. patent No. 2,390,911 assigned to the Wisconsin Alumni Research Foundation. Another pending patent application by the same Association reported that toxicity also was intensified by treating the powdered seed with lime or other alkali prior to extraction at 60°C. Finally the effect of aging before and after extraction was studied. It was found that on aging, the toxic constituent of the powdered seed was more easily extracted by the solvent. Kerosene extracts of the seed stored in tightly closed amber glass bottles showed no loss of toxic activity up to 22 months; however, when the extracts were exposed to the light, rapid deterioration in potency occurred during the first two weeks.

In Synergistic Combination

By a further group of experiments effective combinations of sabadilla and other insecticides were studied. A synergistic combination of sabadilla and derris had been reported in 1935. Sabadilla and pyrethrum were found not complementary but a combination of sabadilla and "Lethane," an aliphatic thiocyanate, showed a toxicity at least double that of each constituent. Such a combination became the subject of a third patent, U. S. No. 2,348,949, assigned to the Wisconsin group.

Warm-Blooded Animals

A series of experiments were conducted to study the effect of kerosene solutions of sabadilla, rotenone, and "Lethane" administered orally and applied externally to rats. The solutions were of a strength slightly greater than would be commonly encountered in the household fly sprays. Gross examination showed sabadilla to be irritating, affecting the mucous membranes and areas of the body with which it had come in contact. Rotenone, however, was by far more toxic than sabadilla and caused the death of a number of the rats. "Lethane" was slightly less irritating than either of the other two. In another experiment, rats were subjected to a settling mist and a direct spray of kerosene solutions of the three insecticides. In these tests, "Lethane" was the most irritating with sabadilla next and pyrethrum the least irritating.

As an Insecticide Dust

A number of activated dusts were prepared by heating coarsely ground sabadilla seeds at 75° to 80°C. for four hours, cooling, and finely powdering with a diluent such as various mixtures of talc, sulfur, and hydrated lime. Observations appeared to indicate that sabadilla was less harmful to pollinating and other beneficial types of insects. As an agricultural insecticide, it appears to be safer

for use on crops that tended to hold insecticide residues. Dusts of 10% to 20% sabadilla seed proved very toxic to the sucking-type insects in tests run in several western states. The residual or "staying" power of sabadilla dusts was greater than pyrethrum or rotenone dusts but not as great as DDT. A comparative study was made of the effect of sabadilla and rotenone containing dust on rats. Sabadilla dust caused temporary irritation, no retarding of growth rate, and no deaths; whereas rotenone dusts caused eye injury, failure to gain weight, and in higher concentration, rotenone dusts caused death.

In Rat Rations

Another series of experiments compared the toxicity of heat-treated sabadilla seed and crude alkaloids isolated from sabadilla with that of DDT, incorporated into basal rations for rats. DDT was most toxic—as little as 0.625% in the diet causing death in 3 to 5 days. Rotenone was only slightly less toxic than DDT—0.625% rotenone killing rats in 7 to 9 days. The toxic level of sabadilla seed was slightly less than 2.5% and that of the crude alkaloids just about 2.5%. The toxicity appears to be concentrated in the two alkaloids cevadine and veratridine. Experiments on the milkweed bug and the red-legged grasshopper with dusts prepared from these two alkaloids showed cevadine to be the most toxic; however, both alkaloids showed far greater toxicity than did DDT.

Carl H. Krieger, Ph.D., Research Associate, Wisconsin Alumni Research Foundation. *Agricultural Chemicals* **1**, 4, Aug., 1946.

—— ♦ ——

Mich. Bleach Now Nelson

Michigan Bleach and Chemical Co., Detroit, reported that the company changed its name on August 1st to Nelson Chemicals Corporation. The change applied also to their Cleveland, and Windsor, Ontario activities.

—— ♦ ——

Corrects Pyrethrum Error

Stating that errors appeared in an article entitled "Pyrethrum Analysis Dispute," which appeared in the August issue of *Soap & Sanitary Chemicals*, George E. Nixon, president of the Greene Trading Co., New York, American representatives of the Kenya Farmers' Association, gave the facts as follows:

"It is quite true that we received a cable from the Kenya Farmers' Association (Co-Operative) Ltd., regarding the method of analysis which should be used in connection with determining the pyrethrum content of Kenya pyrethrum flowers.

"The method specified by the K. F. A. is the Modified Seil Method of Analysis as published in your Blue Book of 1938.

"The K. F. A. do now wish assays carried out under the original Seil Method of Analysis but in strict accordance with the published Modified Seil Method of Analysis indicated above.

"We might add the reason for the K. F. A. specifying the Modified Seil Method of Analysis, as published, was due to the fact that we understand Dr. Seil developed some new techniques or methods which have not been published and thus a modified version of the published Modified Seil Method was being used."

—— ♦ ——

Control Off Some Waxes

Suspension from price control of shoe polish, furniture polish, automobile polish, industrial wax finishes and dressings containing specified amounts of certain imported waxes was announced by the office of price administration on Aug. 28.

The suspension applies not only to these polishes and finishes but also to other products containing three per cent or more of one or more of the imported vegetable waxes, carnauba, ouricury or candelilla wax.

OPA explained that since suspension of the imported vegetable waxes, carnauba, ouricury and candelilla, from price control on Oct. 24, 1945, prices have more than doubled. As a result, manufacturers of products containing these waxes found it impossible to make the end products under their March 1942 ceiling prices. Many individual price increases were granted these manufacturers but they soon became inadequate.

Consideration was given to placing the raw material under control again. However, since world market prices could not be controlled and manufacturers' wax raw material costs would fluctuate it would be impossible to maintain retail ceiling prices on end products. The cost of industrial wax finishes and polishes for industrial use are minor business costs, OPA pointed out.

—— ♦ ——

Boston BIMS Golf Outing

The season's final golf meeting of the Boston BIMS is scheduled for September 19th at the Weston Golf Club, Weston, Mass. This is a new course to the Boston group and is said to be perhaps the most scenic in greater Boston.

CHLORINE DIOXIDE

(*From Page* 43)

moved from the cone-shaped bottom of the kettle.

At the plant under discussion this acid process gave excellent results, improving the F.A.C. number from 13-15 to 3-5. The process is simple and requires no additional equipment. However, the fact that the reaction takes place under acid conditions causes appreciable corrosion to pipes and valves. As a result, the bleaching department substituted for this acid process the chlorine-chlorite process, as follows:

A 61,000-pound batch of tallow, which has first been refined, is heated with steam to 210-212° F. in an open-top kettle, and enough chlorine gas is added to the water layer, again representing about 10% of the weight of the tallow, to lower its pH to 6. Then 0.1% by weight of sodium chlorite, based on the weight of the tallow, is added. The chlorite may be added as a 1% to 2% aqueous solution, or it may be more convenient to add the water first and, after the temperature has reached 212° F., add the determined amount of dry chlorite. In the latter case, boiling is continued long enough for the chlorite to be dissolved and mixed uniformly with the tallow. Finally, sufficient additional chlorine gas is added to complete the reaction

Keep Profits coming with

INSECT•O•BLITZ

You can . . . as long as bugs fly. Because housewives will keep coming for this better insecticide that knocks 'em out for good.

It's a best seller, killing more easily, more economically than ordinary sprays. Re-order now for the worst fly time is here. Jobbers stock Insect-O-Blitz by the carload.

For quick turnover, big profits, display Insect-O-Blitz. It really kills flies, mosquitoes, flying moths and similar insects.

ACTIVE INGREDIENTS

Dichloro-Diphenyl-Trichloroethane (DDT)	3.00%
.4% Pyrethrins = Pyrethrum Concentrate	2.00%
Cyclohexanone	5.00%
Hydrocarbon Oil	5.00%

INERT INGREDIENTS

Dichloro Difluoro Methane (Freon 12)	85.00%

PRICE LIST

AEROSOL INSECT-O-BLITZ retail list price $3.00 per unit. Fair-traded $2.95. Subject to liberal trade discounts. F.O.B. destination on 3 cases or more. Presently packed 24 per case.

You tell the Housewives and they'll buy INSECT•O•BLITZ

Safe when used as directed, it's non-inflammable, non-explosive. It's exactly what the Armed Forces used. So economical, one dispenser will keep a home bug-free all season. Spray only a few seconds per room. As a space spray, one dispenser equals two or more gallons of ordinary insect spray. Self-spraying, there's nothing to fill, spill, or pump. Tell them. They'll buy.

ORDER NOW FROM YOUR LOCAL DISTRIBUTOR OR DIRECT

INSECT•O•BLITZ

INSECTICIDE DIVISION

INDUSTRIAL MANAGEMENT CORPORATION

SALES OFFICES: 458 S. Spring St., Los Angeles 13, Calif.; 38 S. Dearborn St., Chicago 3, Ill. FACTORY: Valparaiso, Ind.

with the chlorite. The total chlorine required is not more than one-third of the weight of the chlorite used, and the gas may be added in 40-60 minutes.

Chlorine addition is carried out in this manner: Two 150-pound chlorine cylinders are manifolded together and used simultaneously in order to reduce the rate of withdrawal from each and thus prevent frost formation on the outside of the cylinders. A platform scale used as a stand for the cylinders furnishes a visual check on the amount of chlorine used. The outlets are connected to a ¼-inch brass tee by means of ⅜-inch copper tubing. From this tee a single copper tube goes to a 200-pound chlorine gauge, and then to a second tee from which two lines branch out, one going to each of the two large kettles. (Only one kettle is used at a time, however.) A ¼-inch threaded Hastelloy nipple is welded into each tank wall near the base of the cone. On this nipple is a ¼-inch Lunkenheimer needle valve with Hastelloy seat and stem. This valve is kept closed until sufficient chlorine pressure to overcome the head pressure of the fat shows on the gauge. Then the valve is opened and chlorine flows into the water layer at the base of the kettle.

When the chlorine addition is completed, the chlorine valve at the kettle is closed and the chlorine supply is shut off at its source. Agitation with steam continues for a total of 30 minutes, at which time the bleaching reaction has been accomplished. The total bleaching time is an hour and a half.

When bleaching is completed, dilute caustic is added to raise the pH of the water layer just above 8. The tallow is dried and shipped at a stable F.A.C. color of 3-5.

Bleaching with Dry ClO_2

Although the chlorine-chlorite bleaching process just described proved to be highly satisfactory, this rendering plant has discarded it for a new chlorite bleaching process which is considerably more efficient and economical. In this process, the chlorine dioxide gas is generated outside the kettle and applied to the fat, as follows:

The tallow is refined in the usual manner, washed, and allowed to settle. Any remaining soap solution is drawn off from the bottom of the kettle next morning. The tallow is heated with closed steam coils to 212°F., and a stream of chlorine dioxide gas and air (generated in the manner described below) is passed into the bottom of the kettle and up through the tallow to the top. The air flow is regulated to provide sufficient agitation of the hot tallow. The flow of chlorine dioxide is regulated to give complete bleaching of a 30-ton batch in from 1 to 1½ hours.

There are several advantages which have been found to result from use of the dry chlorine dioxide process:

1. There is considerable reduction in the quantity of chlorite required per ton of tallow bleached. Less than one-third of the amount required in the "in situ" production of chlorine dioxide is needed for the dry method, reducing chemical costs by a corresponding amount. This is partly due to the fact that the reaction is carried out under alkaline conditions, thereby increasing the oxidation potential of chlorine dioxide.
2. The earlier methods required a water layer below the tallow, amounting to 10 per cent of the weight of the tallow. When the dry chlorine dioxide method of bleaching is used, this water layer is eliminated.
3. The passage of a stream of dry chlorine dioxide and air through the kettle bleaches and dries the tallow at the same time. This represents considerable economy of time, since no separate drying operation is required.
4. There is no need to adjust the pH at any point. The residual soap left in the tallow after refinement is sufficient to keep the pH of the water washings of the tallow on the alkaline side. Moreover, this condition persists throughout the bleaching treatment and makes it unnecessary to add caustic at the end of the operation.
5. The reduction in drying and neutralizing time, and the general simplicity of the operation, result in a saving of two hours in the time required to bleach and dry a batch of tallow.

Dry Chlorine Dioxide Generator

The operation of the dry chlorine dioxide generator depends upon the reaction between a stream of chlorine gas and solid sodium chlorite. The chlorine is highly diluted with air at all times. The generator (4), as modified for application to fat bleaching, has four essential parts:

a) Air Supply
b) Chlorine Cylinders
c) Control Panel
d) Sodium Chlorite Tower

The control panel carries special equipment which proportions with great accuracy the flow of chlorine and air passing into the base of the chlorite reaction tower. There is also an air-operated automatic shut-off valve on the chlorine line. Its function is to prevent chlorine gas from entering the chlorite reaction tower when the air is not flowing, or in case the air supply should fail. In that event, a powerful spring takes charge within the valve, and completely shuts off any further flow of chlorine to the reaction tower. As soon as the flow is restored, this valve opens automatically and regulated generation of chloride dioxide gas proceeds again as before. As this controlled mixture of chlorine and air passes up through the tower, chlorine dioxide is formed so that at the top of the tower there emerges a stream of pure chlorine dioxide and air. This mixture passes up through a loop and a vacuum break above the top of the kettle (to prevent flow back of the tallow into the tower), then down to the base of the kettle, where it flows into the tallow. Bleaching takes place as the stream of chlorine dioxide and air passes up through the kettle.

The generator is easily operated. The operator turns on the air flow at the panel and then the chlorine flow, setting the desired rates on the two manometer-type flow meters. At the completion of the bleach these two controls are shut off. The supply of air and chlorine dioxide may be varied, but sufficient air must always be admitted to insure safe dilution of chlorine dioxide. The concentration of chlorine dioxide, as measured by its partial pressure in admixture with air, should not go above 30 mm. of mercury. With a concentration of chlorine dioxide equal to 11 mm. of mercury and a rate of air flow sufficient to agitate the tallow a 30-ton batch is bleached in 70 minutes.

The tower of chlorite as set up at this plant can hold as much as 100 pounds of sodium chlorite, sufficient to bleach 300 tons of tallow. This makes

it possible to use one complete charge of chlorite to bleach 10 batches (30 tons each) before recharging. The top of the tower is level with a metal or transite covered platform which facilitates removal of the top flange. To discharge spent chlorite the top flange is removed and the tower is filled with water, the salt being flushed out to the drain through the porcelain valve at the base of the tower. When completely flushed, air is blown into the tower at the base with the top flange off. When the tower is thoroughly dry it is refilled from the top with a fresh charge of sodium chlorite.

Other Uses for ClO_2

Preliminary experiments show promise of several applications of interest to the soap manufacturer in addition to those already discussed. For example, in the bleaching of palm oil, the use of chlorine dioxide gives rapid and effective decolorization. A sample of badly discolored palm oil, which required 2¼ hours to bleach with a stream of air, was bleached in one-half hour with a dilute mixture of chlorine dioxide and air. When the concentration of the chlorine dioxide was increased, the same bleach was obtained in less than five minutes.

Utilization of the powerful oxidizing effects of chlorine dioxide offers possibilities for use in organic syntheses involving oxidation reactions. Air blowing, which is commonly used as an economical source of oxygen in many industrial operations, may well be enhanced by admixture with small quantities of chlorine dioxide gas produced in a generator as described above. Such air blowing operations are usually very time-consuming, and the function of the chlorine dioxide would be to shorten the time required to complete these reactions. This suggests possible new sources of fatty acids for soap making.

References

(1) Tuttle, J. B., and Woodward, E. R., Chemical and Metallurgical Engineering, Volume 53, May, 1946, Page 115.

(2) Taylor, M. C., White, J. F., and Vincent, G. P., TAPPI Papers, Series XXIII, No. 1 (1940).

(3) Fenrich, E. G., and Vincent, G. P., American Dyestuff Reporter, May 25 (1942).

(4) Woodward, E. R., Petroe, G. A., and Vincent, G. P., Transactions of American Institute of Chemical Engineers, June (1941).

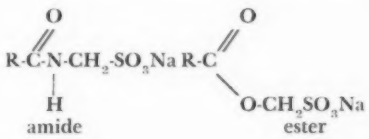
SYNTHETICS VS. SOAPS

(*From Page 39*)

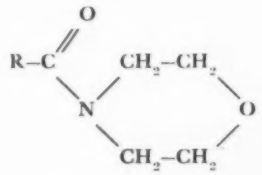
intermediate hydrophilic group such as found in ricinoleic acid, hydrostearic etc.

(2)*Sulphonated amide or ester derivatives* also are good detergents.

The amide is more stable to acids than the ester. Examples are "Igepon," "Arctic Syntex," "Penetrol —60, "Phio-Sol WA," "Intramine," etc. Again the detergent properties are dependent on the hydrocarbon chain which is derived chiefly from the fatty acids



C_{10} to C_{18}. Modifications can be, and are introduced by modifying the amide or ester group, by lengthening the chain or introducing substitutions. For example, sodium lauro p-toluide-3 sulfonate is said to be superior even to "Gardinol" or "Igepon," and the acid chloride morpholine condensation product is useful for mixing with the above types to enhance detergent power.



The dibasic esters could be considered as a first cousin to this family. They are solubilized by introducing the sulfate group into the acid part of the chain, such as the di amyl sodium sulfosuccinate ("Aerosol A Y"). Here the chain length is less than the normal fatty acid chain and it is to be noted that the compound is not a detergent but a wetting agent only. This fact is generally true for all other synthetic surface active agents.

(3) *Alkyl aryl sulfonates* R-Ar-SO_3Na.

The most typical example of this class is sodium alkyl naphathalene sulfonate. Here petroleum derivatives are introduced in addition to the straight chain alkyl group derivable from the fatty acids. This is a stable class of compounds with good detergent properties dependent on the strength of the alkyl chain. The examples are numerous, a few being: "Alkanol," "Merpentine," "Neomerpin," "Aerosol AS," "Nekal," "Santomerse," "Areskap," "Solvadine NC," "Nacconol," "Naccosol," "Titanole," "Titazole SA," etc. A wide degree of variation is to be noted in this class of compounds, by modification of either alkyl or aryl group.

(4) *The alkyl aryl ether sulfates.* AR-O-R-CH_2SO_4Na.

This combination is a variation of three above with aryl and alkyl groups linked by an ether oxygen. Examples, "Solvadine," "Triton," "Tensol."

(5) *Partial esters of poly alcohols.*

CH_2-O-CO-R
|
CHOH
|
CH_2OH

Here the normal fatty acids are solubilized through partial esterification with a poly alcohol such as glycerol, hexitol, pentaerythritol etc. The compounds are not very acid or alkali stable. They are particularly valuable as fat emulsifying agents. Examples, "Span," "Arlacel," "Pentamull."

(6) *Quarternary ammonium salts.*

The compounds described under class 5 above either ionize like soap or are non-ionic like the poly alcohol esters. There is another class of surface active agents, the quaternary ammonium salts of the fatty acids, whose ionic characteristics reverse those of soap and are accordingly sometimes referred to as "invert soaps." The relationship is illustrated below:

$[C_{17}H_{33}COO—]$ $[Na+]$ Sodium Oleate
$[SO_4=]$ $[(CH_3)_3C\ CH_2–CH_2\ NH\ CO\ C_{17}H_{33}+]_2$ "Sapamine"

Such compounds are useful in detergent work where the normal charge on the dirt particle is reversed. Examples of such compounds are: "Sapamine," "Beta Sol," "Stearonyx," "Triton S-18" etc. See also, J. B. Niederl et al, *J. Am. Chem. Soc.* 63: 1476 and 2024, 1941.

MANY other classes and sub classes could be introduced, but the author believes the above broad outline covers typical materials having possibilities as detergents. The common use of the long chain hydrocarbon or fatty acid C_{12} to C_{18} is apparent. It appears therefore that one of the basic ingredients of a good synthetic detergent is one of these long hydrocarbon chains which is likewise a raw material of the soap industry.

A study of these synthetic compounds reveals how fundamentally similar they are to soap in their detergent action. They all have a long hydrocarbon chain solubilized in some way, usually through a sulfate, sulfonate or series of hydroxyl or ether groups so that they are surface oriented. Their chief claim to superiority over soap is their acid stability and the solubility of their lime and magnesium soaps. They do not all conform 100 per cent to these two specifications. Esters in particular are susceptible to acid and alkali hydrolysis. The solubility of the Ca and Mg salts also depends on the fatty acid chain length so that calcium lauryl sulfonate is many times as soluble as the corresponding calcium stearyl sulfonate. In textile work where it is desirable to work with low pH solutions or solutions actually acid, this type of detergent becomes of great value. Soap is useless. Also in dyeing operations where the rinse water has a trace of hardness, the residual soap in the fabric precipitates as calcium and magnesium soaps thereby causing the dyeing operation to become uneven and spotty. With the proper synthetic the hardness of the water is not a problem and an expensive softening process is avoided.

This same precipitation of lime salts is evident in all fields where soap is used in hard water. No difficulty is encountered with the lime precipitates as long as sufficient soap is present to emulsify them. No bath-tub ring for example will be encountered if sufficient soap is used to produce a permanent lather. This is true also in laundering, dish washing or shampooing. It is only when the residual soap must be removed that difficulty is encountered. Here the fresh hard water reacts with the soap residue, forms an insoluble precipitate and prevents clear rinsing. In laundry work these residues brown under the iron and gray the cloth over a period. Glasses lack a sparkle and hair feels greasy. This condition can be corrected by using soft water in the rinse. The effectiveness of this method may easily be demonstrated in the laboratory. Wash a beaker thoroughly and rinse with distilled water. Three, four and five good rinses are needed before the suds are finally washed out. Now repeat, but rinse with tap water. The suds disappear on the first dash of water, being immediately converted to the insoluble lime soap.

Soft water for rinsing is not always available, particularly in the home. This may be circumvented by the use of sodium hexametaphosphate, first developed about 10 or 12 years ago under the trade name "Calgon." This complex phosphate ion forms a soluble calcium and magnesium salt the ionization constant of which is below that of the corresponding soaps. Thus a weak solution will actually redissolve the lime soaps and liberate normal soap. If the beaker in the example above is rinsed with tap water, a small amount of the hexametaphosphate solution will produce a lather. Thus, the addition of the p r o p e r amount of the above salt in tap water, will render it as effective a rinse as if the water were softened. Unfortunately, sodium hexametaphosphate reverts to a noncomplex forming type with time so that it is not feasible to add this compound to each box of soap flakes or powder sold to correct for water hardness. Other water softening agents are helpful and find frequent use in soaps of all types but their action is different in principle.

Where wetting, emulsifying and washing action is required in solutions below 6 pH synthetic detergents cannot be displaced by soap. This is not business lost by soaps except in those cases where the same thing could be done at an alkaline pH. Certain phases of textile treatment, leather tanning and electroplating and pickling baths etc. are examples.

Synthetics will always be useful where lime precipitation in rinsing is extremely undesirable or where the type of soil requires an unusual detergent such as an "invert soap." In these cases however, the synthetic must be selected with care to be sure it performs correctly under the specified conditions. In this connection it may be well to point out that recent war conditions hampered synthetic manufacturers as well as soap makers and many products of inferior grade were placed on the market due to lack of proper raw materials.

It is the author's opinion that synthetics have found a permanent place in the consumer market because of their unique characteristics in solving certain special problems. Also that the state of flux in this field has probably caused many good wetting agents to be misclassed as detergents. These will be relegated to their proper place with time. It is also felt that many special wetting and detergent problems now considered a job for synthetics could be handled better and more cheaply with an ordinary specialized soap. It is urged therefore that small manufacturers take advantage of present distillation and solvent extraction facilities for fatty acid separation so that they can diversify their production as far as possible to meet unusual problems. Although frequently the fatty acid raw material of a true synthetic detergent is the same as that used in soap making, it is doubtful if the business involved would warrant erection of a synthetic producing plant except under very unusual circumstances, since, costs, processing and normal sales outlets would differ widely from those applying in the manufacture and sale of soap.

TRADE MARK APPLICATIONS

(*From Page* 59)

MICROMUL—This in upper case, bold, stencil letters for emulsions of waxes chiefly of the microcrystalline variety. Filed Jan. 17, 1946 by Quaker Chemical Products Corp., Conshohocken, Pa. Claims use since Dec. 14, 1945.

DAZ-L-DENT—This in upper case, outline, block and script letters within a heavy, black outline border, roughly rectangular, beneath a star and lines emanating from it, for tooth powder. Filed Jan. 28, 1946 by Daz-L-Dent Laboratories, Kansas City, Mo. Claims use since June 1, 1933.

RED BALL—This in upper case, bold letters with a lined sphere between the words red and ball. Filed Jan. 29, 1946 by Fred L. Smith, Paola, Kans. Claims use since June 24, 1944.

ODOR-OUT—This in upper and lower case, bold letters for chemical preparation for absorbing disagreeable odors. Filed Feb. 4, 1945 by Puritan Chemical Co., Atlanta. Claims use since Jan. 3, 1944.

SHAMPOOLIN—This in upper and lower case, bold script letters within a double-ruled circle for liquid and cream shampoos. Filed Feb. 19, 1946 by Fred Riehle, New York. Claims use since Feb. 1, 1946.

RUST-SOL—This in upper and lower case, bold, script letters for rust removing chemical composition. Filed Mar. 7, 1946 by Voris Laboratories, Hagerstown, Md. Claims use since Jan., 1936.

RAINBOW—This in upper case, extra bold letters for rat baits. Filed Mar. 11, 1946 by Cenol Co., Chicago. Claims use since Oct. 15, 1945.

DEE-REZ—This in upper case, extra bold letters for insecticide. Filed Mar. 13, 1946 by Huntington Laboratories, Inc., Huntington, Ind. Claims use since Feb. 25, 1946.

SOL-U-DEE—This in upper case, extra bold, black letters for insecticide. Filed Mar. 13, 1946 by Huntington Laboratories, Inc., Huntington, Ind. Claims use since Feb. 4, 1946.

NIL—This in upper case, extra bold, extra large letters for liquid deodorant and antiseptic. Filed Mar. 18, 1946 by Anderson-Stolz Pharmaceuticals, Inc., Kansas City, Mo. Claims use since Feb. 12, 1946.

HOSPITALITY HOUSE—This in upper and lower case, medium script letters for bubble bath preparation. Filed Mar. 18, 1946 by Stephen Riley Co., Los Angeles. Claims use since Oct. 15, 1945.

PNCO—This in upper and lower case, open and solid letters within a winged wreath design for polishing and cleansing preparations for furniture, etc. Filed July 16, 1945 by National Polish Co., Van Wert, O. Claims use since Mar. 15, 1940.

RED DOT IN THE UPPER LEFT HAND CORNER OF MERCHANDISE OR ON CONTAINERS—For soaps. Filed Nov. 13, 1945 by Mem Co., New York. Claims use since 1924.

"CBS" CLEANER—This in upper case, bold letters for preparation for cleaning by hand in dairies, industrial establishments, etc. Filed Dec. 20, 1945 by Klenzade Products, Inc., Beloit, Wis. Claims use since July 1, 1944.

SEABRITE—This in upper case, bold letters for cleaner for metal. Filed Dec. 29, 1945 by Johnson-March Corp., New York. Claims use since Dec. 1, 1945.

KING OF CLUBS—This in upper case, bold letters for face soaps, bath soaps and shaving creams. Filed Jan. 26, 1946 by Golden Arrow Toiletries, New York. Claims use since Jan. 1, 1945.

HAR-THO—This in upper case, extra bold letters for granulated soap and washing and cleaning compound. Filed Jan. 28, 1946 by Blue Ribbon Products Co., San Francisco. Claims use since Sept. 11, 1945.

WILDWOOD—This in upper and lower case, extra bold, script letters for bath soap and toilet soap. Filed Jan. 31, 1946 by Donna Lo Laboratories, Inc., St. Louis. Claims use since Sept., 1944.

KORDUROY—This in upper and lower case, script letters for hair shampoo. Filed Dec. 20, 1945 by Darnoid, Chicago. Claims use since Nov. 20, 1945.

TWIN-8—This in upper case, medium letters for chemical products for use in combating insects. Filed Mar. 16, 1946 by Monsanto Chemical Co., St. Louis. Claims use since Feb. 11, 1946.

FLOOR CRAFTERS—This in upper case, bold letters for floor wax. Filed Dec. 29, 1945 by Selby, Battersby & Co., Philadelphia. Claims use since Dec., 1932.

Trade Marks Granted

421,337. Paint and varnish remover. Filed by Bissell Varnish Co., Bridgeport, Conn., Sept. 11, 1945. Serial No. 488,254. Published Mar. 5, 1946. Class 16.

421,340. Toilet soap. Filed by Primrose House, Inc., New York, Sept. 15, 1945. Serial No. 488,547. Published Mar. 5, 1946. Class 4.

421,343. Liquid deodorant for general household use. Filed by Selig Co., Atlanta, Sept. 20, 1945. Serial No. 488,834. Published March 5, 1946. Class 6.

421,353. Chemical preparation for the removal of incrustations. Filed by Saverite Engineering Co., Los Angeles, Sept. 28, 1945. Serial No. 489,147. Published Feb. 26, 1946. Class 6.

421,359. Insecticides. Filed by Pennsylvania Engineering Co., Philadelphia, Oct. 2, 1945. Serial No. 489,279. Published Mar. 5, 1946. Class 6.

421,366. Antiseptic and detergent preparations. Filed by Winthrop Products, Inc., New York, Oct. 2, 1945. Serial No. 489,303. Published Feb. 26, 1946. Class 6.

421,370. Soap. Filed by Procter & Gamble Co., Cincinnati, Oct. 8, 1945. Serial No. 489,609. Published Mar. 5, 1946. Class 4.

421,371. Insecticides. Filed by Chemical Service Co., Baltimore, Oct. 11, 1945. Serial No. 489,793. Published Feb. 26, 1946. Class 6.

421,376. Insecticides. Filed by Crafton Chemical Co., Richmond, Va., Oct. 22, 1945. Serial No. 490,312. Published Feb. 26, 1946. Class 6.

421,392. Insecticides. Filed by Chemurgic Corp., Richmond, Calif., Nov. 2, 1945. Serial No. 490,927. Published Mar. 5, 1946. Class 6.

421,478. Bath capsules containing perfumed oils and saponaceous

detergent. Filed by Schratz Products, Detroit, July 20, 1945. Serial No. 486,069. Published Mar. 12, 1946. Class 4.

421,490. Powdered abrasive cleaner for marine use. Filed by Flinco, Inc., New York, July 31, 1945. Serial No. 486,590. Published Mar. 19, 1946. Class 4.

421,498. Toilet soaps. Filed by Charles of the Ritz, Inc., New York, Aug. 7,. 1945. Serial No. 486,853. Published Mar. 12, 1946. Class 4.

421,501. Shampoos. Filed by Mme. Huntingford, Inc., Chicago, Aug. 9, 1945. Serial No. 486,950. Published Mar. 12, 1946. Class 6.

421,503. Naphthalene in various forms, coal tar insecticides and disinfectants. Filed by Koppers Co., Kearney, N. J., Aug. 10, 1945. Serial No. 486,993. Published Mar. 12, 1946. Class 6.

421,505. Cleanser for kitchen utensils, etc. Filed by B. T. Babbitt, Inc., Albany, N. Y., Aug. 11, 1945. Serial No. 487,027. Published Mar. 12, 1946. Class 4.

421,508. Germicidal composition. Filed by Lynch and Co., St. Louis, Aug. 28, 1945. Serial No. 487,683. Published Mar. 19, 1945. Class 6.

421,519. Disinfectant and germicide. Filed by Selig Co., Atlanta, Sept. 10, 1945. Serial No. 488,183. Published Mar. 12, 1946. Class 6.

421,528. Insect repellent. Filed by Carbide and Carbon Chemicals Corp., New York, Sept. 17, 1945. Serial No. 488,570. Published Mar. 12, 1946. Class 6.

421,534. Dentifrice. Filed by Rystan Co., New York, Sept. 24, 1945. Serial No. 488,933. Published Mar. 12, 1946. Class 6.

421,535. Dentifrice. Filed by Fletcher Chemical Co., San Antonio, Tex., Sept. 25, 1945. Serial No. 488,956. Published Mar. 10, 1946. Class 6.

421,552. Linoleum and floor wax. Filed by Leadway Stores Corp., Chicago, Oct. 6, 1945. Serial No. 489,517. Published Mar. 12, 1946. Class 16.

421,577. Shaving cream and face and bath soaps. Filed by Golden Arrow Toiletries, New York, Oct. 19, 1945. Serial No. 490,184. Published Mar. 19, 1946. Class 4.

421,580. Insecticides. Filed by Chipman Chemical Co., Bound Brook, N. J., Oct. 20, 1945. Serial No. 490,234. Published Mar. 19, 1946. Class 6.

421,592. Insecticides and germicides. Filed by California Spray-Chemical Corp., Richmond, Calif., Oct. 30, 1945. Serial No. 490,739. Published Mar. 12, 1946. Class 6.

421,593. Insecticides. Filed by Organized Distributors, Inc., Oakland, Calif., Oct. 31, 1945. Serial No. 490,850. Published Mar. 12, 1946. Class 6.

421,596. Insecticides. Filed by Antiseptol Co., Chicago, Nov. 3, 1945. Serial No. 490,989. Published Mar. 12, 1946. Class 6.

421,735. Cleaning, cleansing and detergent material for washing and cleaning dishes, etc. Filed by Lystad & Redick, East Grand Forks, Minn., and Devils Lake, N. Dak., Nov. 9, 1944. Serial No. 476,296. Published Mar. 26, 1946. Class 4.

421,736. Cleaning, cleansing and detergent material for washing and cleaning dishes, etc. Filed by Lystad & Redick, East Grand Forks, Minn., and Devils Lake, N. Dak., Nov. 18, 1944. Serial No. 476,629. Published Mar. 26, 1946. Class 4.

421,750. Liquid cleaner for general household use. Filed by Roseth Co., Minneapolis, May 21, 1945. Serial No. 483,633. Published Mar. 26, 1946. Class 4.

421,751. Cleaner for walls, painted surfaces and general use. Filed by Universal Chemical Products Co., Boston, May 25, 1945. Serial No. 483,794. Published Mar. 26, 1946. Class 4.

421,759. Surface cleaner in paste form. Filed by Acme Chemical Co., Milwaukee, June 30, 1945. Serial No. 485,254. Published Mar. 26, 1946. Class 4.

421,793. Synthetic soap. Filed by Phipps Products, Inc., Boston, Sept. 24, 1945. Serial No. 488,930. Published Mar. 26, 1945. Class 4.

421,818. Synthetic solid detergents. Filed by Monsanto Chemical Co., St. Louis, Oct. 20, 1945. Serial No. 490,253. Publ. Mar. 26, '46. Class 4.

421,821. Glass cleaner. Filed by Oceanic Chemical Co., Seattle, Oct. 22, 1945. Serial No. 490,327. Published Mar. 26, 1946. Class 4.

421,820. Rug and carpet cleaning compound. Filed by Mathieson Alkali Works, New York, Oct. 22, 1945. Serial No. 490,321. Published Mar. 19, 1946. Class 4.

421,947. Solution to be used as a coating, etc., for textiles, plastics, etc., for mildewproofing and mothproofing. Filed by Herbert J. Heribert, New York, Apr. 11, 1945. Serial No. 481,993. Published Nov. 27, 1945. Class 6.

421,948. Finely divided fuller's earth used as an insecticide carrier or diluent. Filed by Attapulgus Clay Co., Philadelphia, Apr. 14, 1945. Serial No. 482,130. Published Apr. 9, 1946. Class 1.

421,954. Shampoos and liquid dentifrices. Filed by Beau Brummel Ties, Inc., Toiletries Division, Cincinnati, July 30, 1945. Serial No. 486,451. Published Mar. 19, 1946. Class 6.

421,961. Shampoos. Filed by National Industries, Inc., Chicago, Aug. 25, 1945. Serial No. 487,562. Published Mar. 26, 1946. Class 6.

422,002. Antiseptic and septic liquids and disinfectants. Filed by Consolidate Cosmetics, Chicago, Oct. 22, 1945. Serial No. 490,317. Published Mar. 26, 1946. Class 6.

422,016. Bubble Solution. Filed by Virginia Maid Products, Inc., Lynchburg, Va., Nov. 5, 1945. Serial No. 491,145. Published Mar. 26, 1946. Class 6.

422,143. Distributors in the nature of attachments for use in connection with air circulating devices such as suction cleaners for adding various agents to the air such as insecticides. Filed June 26, 1943 by Eureka Vacuum Cleaner Co., Detroit, now by change of name Eureka Williams Corp. Serial No. 461,687. Published April 6, 1946. Class 23.

422,294. Washing compound for clothes having chemical properties adapted for disinfecting, deodorizing, water softening and general household use and having the incidental properties of a cleaner. Filed May 16, 1944 by No-Boil Fluid Chemical Co., Jamestown, N. Y. Serial 470,311. Published April 16th, 1946. Class 6.

422,301. Shaving soap. Filed Mar. 15, 1945 by Charles M. Burt Co., Biloxi, Miss. Serial No. 480,945. Published Jan. 1, 1946. Class 4.

422,317. Washing compounds, powdered hand cleaners, paint and wall cleaners, general household and all purpose cleaners, bowl cleaners, scrubbing soaps, cocoanut liquid soaps, and soaps. Filed Aug. 21, 1945 by Chemical Manufacturing & Distributing Co., Easton, Pa. Serial No. 487,352. Published Apr. 9, 1946. Class 4.

422,323 and 422,324. Sterilizing material comprising water soluble compounds which, when dissolved in water, provide an aqueous solution useful for sterilizing dishes, etc. Filed Sept. 24, 1945 by Walter S. Bachman, doing business as Q. A. C. Company, Los Angeles. Published Apr. 9, 1946. Class 6. 422,323 as serial No. 488,884, and 422,324 as serial No. 488,885.

422,343. Shaving cream, facial and bath soaps. Filed Oct. 31, 1945 by Golden Arrow Toiletries, New York. Serial No. 490,812. Published Apr. 16, 1946. Class 4.

422,347. Disinfectant. Filed Nov. 2, 1945 by David D. Catts, doing business as Retort Pharmaceutical Co., Long Island City, N. Y. Serial No. 490,926. Published Apr. 9, 1946. Class 6.

422,349. Skin Detergent. National Oil Products Co., Harrison, N. J. Filed Nov. 5, 1945. Serial No. 491,111. Published Apr. 2, 1946. Class 4.

422,355. Insecticides. Dodge & Olcott, Inc., New York. Filed Nov. 14, 1945. Serial No. 491,556. Published Apr. 16, 1946. Class 6.

422,359. Soaps in cake and stick form. Parfums Schiaparelli, Inc., New York. Filed November 16, 1945. Serial No. 491,726. Class 4. Published Apr. 23, 1946.

422,363. Soap. Roycemore Toiletries, Inc., Chicago. Filed Nov. 19, 1945. Serial No. 491,888. Published Apr. 23, 1946. Class 4.

422,365. Cleaning compound for general use. John T. Stanley Co., Inc., New York. Filed Nov. 20, 1945. Serial No. 491,937. Published Apr. 23, 1946. Class 4.

422,370 and 422,371. Toiletries, cosmetics, and shampoo. Ernst Peritz, doing business as Delex Products, New York. Filed Dec. 4, 1945. 422,370 is serial No. 492,653, and 422,371 is serial No. 492,654. Published Apr. 9, 1946. Class 6.

422,379. Insecticide in composition form. Griffith Laboratories, Inc., Chicago. Filed Jan. 17, 1946. Serial No. 494,903. Published Apr. 9, 1946. Class 6.

422,544. Shampoo. Filed by Bravo Manufacturing Co., Chicago, Nov. 1, 1944. Serial No. 475,942. Published Apr. 30, 1946. Class 6.

422,555. Bactericides and germicides. Filed by Wallace Laboratories, Inc., New Brunswick, N. J., May 30, 1945. Serial No. 484,000. Published Apr. 30, 1946. Class 6.

422,568. Dentifrice. Filed by Grand Union Co., New York, Sept. 4, 1945. Serial No. 487,940. Published Apr. 30, 1946. Class 6.

422,569. Sterilizer and deodorant. Filed by Acme Chemical Co., Milwaukee, Sept. 4, 1945. Serial No. 488,069. Published Apr. 30, 1946. Class 6.

422,588. Insecticide. Filed by Eight-In-One Products Co., Valdosta, Ga., Nov. 27, 1945. Serial No. 492,261. Published Apr. 30, 1946. Class 6.

422,591. Insecticide and insect repellent. Filed by Robert D. Spiers Laboratories, St. Petersburg, Fla., Dec. 5, 1945. Serial No. 492,745. Published Apr. 30, 1946. Class 6.

422,594. Toothpaste. Filed by Leadway Stores Corp., Chicago, Dec. 17, 1945. Serial No. 493,446. Published Apr. 30, 1946. Class 6.

422,733. Germicidal soaps and floor finishes. Filed by Pur-O-Zone Chemical Co., Lawrence, Kans., Aug. 11, 1944. Serial No. 473,201. Published May 7, 1946. Class 4.

422,759. Liquid detergent. Filed by Haas-Miller Corp., Philadelphia, July 18, 1945. Serial No. 485,591. Published May 7, 1946. Class 4.

422,766. All-purpose cleaner for floors, walls, woodwork, carpets, rugs, upholstery, furniture, porcelain, etc. Filed by Crown Chemical Co., Cleveland, Sept. 10, 1945. Serial No. 488,248. Published Apr. 30, 1946. Class 4.

422,770. Soap. Filed by Day & Frick, Philadelphia, Sept. 13, 1945. Serial No. 488,398. Published May 7, 1946. Class 4.

422,772. Cleaning polish for furniture, automobiles and finished surfaces generally. Filed by Grand Rapids Varnish Corp., Grand Rapids, Mich., Sept. 17, 1945. Serial No. 488,584. Published Apr. 30, 1946. Class 16.

422,773. Self-polishing wax for furniture, automobiles and finished surfaces generally. Filed by Grand Rapids Varnish Corp., Grand Rapids, Mich., Sept. 17, 1945. Serial No. 488,585. Published Apr. 30, 1946. Class 16.

422,782. A combination polish and cleaner for automobiles, furniture, plastics, etc. Filed by Bluvox Co., Los Angeles, Oct. 10, 1945. Serial No. 489,739. Published Apr. 30, 1946. Class 16.

422,796. Non-inflammable liquid paint cleaner. Filed by Soil-Off Manufacturing Co., Glendale, Calif., Nov. 21, 1945. Serial No. 492,005. Published Apr. 30, 1946. Class 4.

422,797. Shaving cream, facial and bath soaps. Filed by Elizabeth Arden Sales Corp., New York, Nov. 23, 1945. Serial No. 492,024. Published Apr. 30, 1946. Class 4.

422,799. Cleaning preparation for walls and for washing painted surfaces. Filed by Murokleen Co., Iron Mountain, Mich., Nov. 28, 1945. Serial No. 492,333. Published May 7, 1946. Class 4.

422,800. Self-emulsifying colloidal detergent solvent. Filed by Curran Corp., Malden, Mass., Nov. 29, 1945. Serial No. 492,361. Published May 7, 1946. Class 4.

422,801. Toilet and bath soap. Filed by Bourjois, Inc., New York, Dec. 3, 1945. Serial No. 492,544. Published May 7, 1946. Class 4.

NEW PATENTS

(*From Page* 81)

cent of water; and about 5 per cent to 20 per cent of a morpholine soap coupling agent.

No. 2,403,618, Liquid Cleaning Compositions, patented July 9, 1946 by George M. Skinner, Kenmore, N. Y., assignor to National Carbon Co., New York. A cleaning composition for removing sludge from internal combustion engines consisting of a homogeneous liquid mixture of a solvent composed of a glycol monoalkyl ether and a higher molecular weight aliphatic ketone, in appreciable component

proportions and in total amount of about 50 per cent to 80 per cent by volume; a lubricating oil in an amount from about 15 per cent to 25 per cent; about 4 per cent to 25 per cent of water; about 5 per cent to 20 per cent of morpholine oleate; and not more than about 10 per cent oleic acid.

No. 2,403,789, Method of Purifying Caustic Alkali Solution, patented July 9, 1946 by Claude A. Cummins, Midland, Mich., assignor to The Dow Chemical Co., Midland, Mich. In a method of treating a chlorate-containing aqueous caustic alkali solution of from 30 to 60 per cent concentration to remove the chlorate, the steps of contacting the solution with finely divided iron and destroying the chlorate by heating the temperature between 70°C. and the boiling temperature, thereafter filtering the mixture, introducing into the resultant solution, which is of greenish color and is enriched in iron compounds, while the solution is at a temperature below 30°C., an agent selected from the class consisting of chlorine and soluble hypochlorites, said agent being employed in approximately the amount required to render the solution substantially colorless, and removing the iron-containing substance which is thereby precipitated.

No. 2,403,821, Polishing Cloth, patented July 9, 1946 by John D. Morgan, South Orange, and Russell E. Lowe, East Orange, N. J., assignors to Cities Service Oil Co., New York. A cloth for cleaning and polishing metal surfaces comprising a soft and absorbent sheet impregnated with a polishing mixture consisting of 1 to 4 per cent by weight of triethanolamine, from 20 to 60 per cent by weight of magnesium oxide (light) from 15 to 45 per cent by weight of precipitated calcium carbonate, and from 10 to 30 per cent of infusorial earth.

No. 2,403,925, Manufacture of Soap, patented July 16, 1946 by Martin Hill Ittner, Jersey City, N. J., assignor to Colgate-Palmolive-Peet Co., Jersey City. The process of making floating soap which comprises aerating molten soap to a definite desired extent employing a sufficient degree of agitation of said soap while still in a molten state in order to comminute the gas particles to an extremely fine and substantially uniform state of subdivision, applying pressure to the molten soap with a reduction in volume thereof substantially equal to the reduction in volume the same soap would suffer at atmospheric pressure in cooling from the same temperature to its solidifying point, then cooling and solidifying the soap.

No. 2,404,003, Detergent Composition, patented July 16, 1946, by Frank J. Soday, Swarthmore, Pa., assignor to The United Gas Improvement Co., Philadelphia. A detergent composition comprising a mixture of tolyl ethyl alcohol and an alkali metal soap, said tolyl ethyl alcohol being present in said mixture in a proportion between 0.05 and 5% by weight of said soap.

No. 2,404,004, Detergent Composition, patented July 16, 1946, by Frank J. Soday, Swarthmore, Pa., assignor to The United Gas Improvement Co., Philadelphia, A detergent composition, comprising a mixture of an ester of tolyl ethyl alcohol and an alkali metal soap, said ester of tolyl ethyl alcohol being present in said mixture in a proportion between 0.05 and 5% by weight of said soap.

No. 2,404,289, Detergent Composition, patented July 16, 1946, by William B. Hicks and Donald J. Saunders, Syracuse, N. Y., assignors to The Solvay Process Co., New York. A detergent composition comprising (by weight) 40 to 50 parts sodium carbonate, 25 to 33 parts tetrasodium pyrophosphate, 2 to 7 parts trisodium phosphate, 2 to 7 parts sodium metasilicate, and 1 to 3 parts of a water-soluble, solid organic sulfonate detergent.

No. 2,404,297, Deterging, Wetting, and Emulsifying Compositions, patented July 16, 1946, by Harry H. Kroll, Providence, R. I., assignor to Alrose Chemical Co., Cranston, R. I. A composition of matter having deterging and wetting properties composed of a mixture of a neutral higher fatty acid amide of the alkylol amines, a water-soluble soap containing from 10 to 18 carbon atoms inclusive, in which the cation is a member of the group composed of the alkali metals, ammonium and substituted ammonium bases, and a water-soluble organic nitrogenous base, said mixture having been heat treated for substantially 15-45 minutes in the range substantially 160-125° C.

No. 2,404,298, Saponaceous Detergent Having Improved Hart-Water Characteristics, patented July 16, 1946, by Harry H. Kroll, Chicago, Ill., and Mark Weisberg, Providence, R. I., assignors to Alrose Chemical Co., Cranston, R. I. A detergent having improved hard water characteristics comprising a water-soluble organic amine, an amide of an alkylol amine and a higher molecular weight carboxy acid, and a water-soluble soap, in the ranges 5-20%, 20-40% and 40-80%, respectively, said percentages being based on the amount of these said three components, which detergent has the form of a bar or cake with a smooth uniform appearance and the smooth feel of bar soap and which is produced by heating the aforesaid components at substantially 125°-160° C. for a period of substantially 45-15 minutes.

No. 2,404,453, Removal of Chlorate from Caustic Soda, patented July 23, 1946, by Sidney G. Osborne and Aloysius Mitchell, Niagara Falls, N. Y., assignors to Hooker Electrochemical Co., Niagara Falls, N. Y. In the purification of substantially 50 per cent aqueous caustic soda solutions containing not over 10 parts of sodium chlorate per 1,000 parts of caustic soda, the method of effecting rapid electrolytic reduction of the chlorate which comprises contacting the solution with an electromotive couple composed of physically distinct metals and made up of a metal of the group consisting of iron, cobalt and nickel short-circuited with a metal of the group consisting of copper, silver, platinum and gold, at 130° to 156° C. and for a time effective in reducing a substantial proportion of the chlorate.

No. 2,404,896, Polishing Wax Compositions, patented July 30, 1946, by David Aelony, Dayton, Ohio, assignor to Monsanto Chemical Co., St. Louis. A polishing composition consisting principally of a mixture of natural and synthetic solid wax-like materials and a solvent therefor, said synthetic solid wax-like material being an N-acyl aminobiphenyl wherein the acyl group contains from 8 to 36 carbon atoms.

WHICH FLOOR WAX

(*From Page* 123)

tile people if you have asphalt tile floors, etc.

All other points can be quickly decided on the basis of a competitive demonstration, side by side on the same floor at the same time. This is the only way to make a demonstration. I repeat, side by side on the same floor at the same time for only in this way can you be sure that both products are subjected to exactly the same abuse or that they are equally favored.

Such a demonstration will allow you to judge quickly as to

Point No. 3—Ease of Application
Point No. 4—Lustre
Point No 6—Dirt Resistance
Point No. 7—Water Resistance

These are all important floor performance qualities. They are of relatively equal importance and you must consider each of them if you are hoping to select a good product based upon present day qualities.

TECHNICAL Briefs

From Current Literature in the Sanitary Products Field

Control of Cattle Flies

For controlling house, stable, and horn flies on animals, a 2.5 per cent DDT suspension is recommended. This suspension should be used at the rate of about 1 quart per adult animal. DDT emulsions, solutions, and dusts are also effective and safe when used according to directions. Stable-flies are more resistant to DDT than houseflies and hornflies. DDT is not effective in killing fly larvae. The use of DDT insecticides is not recommended for controlling horse and deer flies. When used carefully on surfaces of buildings, residual sprays will kill for several months, flies, mosquitoes and a few other insects that crawl over the treated surfaces. H. H. Stage. U. S. Dept. Agr., Bur. Entomol. Plant Quarantine *E675*, 6 pp.

Anti-midge Emulsion

Under the auspices of the Scientific Advisory Committee of the Department of Health for Scotland, investigation has been made of materials for protection against the midge. The compound found effective is dimethyl phthalate, the repellent used during the war against the mosquito.

Tests with this compound in over 50 preparations led to formulation of the following emulsion:

Lanette Wax SX	5 grams
Triethanolamine	9 cc.
Oleic acid	27 cc.
Dimethyl phthalate	100 cc.
Water	100 cc.

Smeared on the exposed areas of the skin, this will ward off midges for at least 2 hours. Although it is not injurious to the skin, it may cause a slight tingling when first applied and when washing the face afterward. The emulsion should not be allowed to get into the eyes nor come in contact with tortoise shell or plastic spectacles. *Chem. Trade J. & Chem. Engineer* 118 432 (1946).

Quaternary Ammoniums

A series of quaternary ammonium salts derived from aliphatic amines, and containing one long-chain alkyl radical and three short-chain radicals, was prepared, and the germicidal powers were studied. In the alkyl triemethyl ammonium bromide series the maximum antibacterial activity is found in cetyl trimethyl ammonium bromide. The anion was found in general to have little influence on the germicidal activity.

The germicidal power was studied of N-carbamyl methyl, N-carbethoxy methyl, and N-*beta*-acetoxy ethyl derivatives of several quaternary ammonium compounds containing one N-cetyl or N-lauryl group, and three low molecular weight N-alkyl radicals. In the N-lauryl group of compounds, the germicidal activity was improved by the substitution of a carbethoxy methyl or *beta*-acetoxy ethyl group for an original N-methyl radical. In the N-cetyl group the reverse was true. The halide salts and the nitrate all gave about the same activity. Organic anions usually lowered the activity of the compound.

When cyclic amines were used for the preparation of quaternary ammonium salts, the peak of germicidal activity was observed in the cetyl pyridinium salts with unsaturated cyclic amines, in cetyl methyl piperidinium bromide with the saturated series. R. S. Shelton, M. G. Van Campen, D. H. Hilfor, H. C. Land, L. Nisonger, F. J. Bandelin, and H. L. Ruvenkoenig. *J. Am. Chem. Soc. 68*, 753-9 (1946).

Insecticidal Composition

An insecticidal composition consists of an emulsifiable mineral-oil insecticidal material and a minor portion of diisoamyl ketone. C. J. Boissonou and W. J. Yates, to Shell Development Co. Canadian Patent No. 433,288.

Velsicol 1068 Discussed

Service letter No. 405 of the National Pest Control Association discusses "Velsicol 1068" new insecticide toxicant developed by Velsicol Corp., Chicago. According to the company, tests have found "Velsicol 1068", a chlorinated hydrocarbon, to be from three to five times more toxic to many species of insects than DDT. The toxicant exhibits residual activity, is completely soluble in all commonly used solvents, and remains in solution at all atmospheric temperatures. "Velsicol 1068" contains a minimum of 20 per cent of the compound in deodorized kerosene. A grade known as "Velsicol 1068 technical", contains a minimum of 90 per cent of the compound. The recommended formulation for roach control is 10 per cent of the 20 per cent concentrate dissolved in a bland, odorless base oil. This product should be applied to infested areas in the same manner as a roach powder is normally employed. It is emphasized that stronger concentrations of the compound are not necessary, nor is it necessary to combine it with other toxicants.

Members of the association report success with this formulation against German roaches. Reports indicate that a high initial kill of roaches results and the residual effect of "Velsicol 1068" seems to persist for at least two months following application. The residual toxic action continues despite adverse conditions where roach powder would normally be rendered ineffective by moisture or greasy film de-

posits. Although the product has not been tested as a component of roach powders, Dr. George Gould of Purdue University has reported that 2 per cent of "Velsicol 1068 technical" in pyrophyllite was as effective in his tests against German roaches as 10 per cent DDT in the same carrier.

Toxicity tests made to date indicate that "Velsicol 1068" is of the same order of toxicity to warm-blooded animals as DDT, when the two chemicals are compared on an equivalent weight basis. However, since appreciably lower percentages of "Velsicol 1068" will give effective results, it is considered that the product offers an advantage in safety over other insecticide toxicants with residual activity. Normal precautionary measures against food contamination should be taken, and it is recommended that a label similar to that used on DDT insecticides be attached to "Velsicol 1068" formulations. Reports also indicate that "Velsicol 1068" is also effective against Pharoah's ant, oriental roaches, American roaches, bedbugs, silverfish, and mill insects.

Insecticidal Sprays

The toxicity of petroleum oil-based sprays to flying insects depends on certain controllable factors; other factors such as the number and size of the drops adhering to the insect, method of spray application, and the structure and responses of the insect present variable factors. Determination of the pickup of spray particles by flying insects has been made by adding aluminum chloride to the spray liquid. The treated insects are subjected to low-temperature oxidation, and the residual aluminum is determined colorimetrically from the blue lake in the buffered solution with hematoxylin. A. B. P. Page, A. Stringer, and R. E. Blackith. *Nature 157*, 80-1 (1946).

DDT Toxicity

Ingestion of 11 ml. per kilogram of body weight of DDT dissolved in olive oil, corresponding to a total dose of 770 mg. did not cause detectable toxic effects in one normal individual. P. A. Neal, T. R. Sweeney, S. S. Spicer, and W. F. Van Oettingen. U. S. Pub. Health Repts. *61*, 403-9 (1946).

DDT for Bedbug Control

DDT is remarkably effective for the control of bedbugs. The most satisfactory method is to spray a 5 per cent solution on the surfaces to be treated. As little as three fluid ounces is usually sufficient for an ordinary double bed and mattress. A 10 per cent DDT dust can also give satisfactory control. L. S. Henderson. U. S. Dept. Agr., Bur. Entomol. Plant Quarantine E-681, 4 pp. (1946).

Hard Wax Substitutes

Hard wax substitutes contain major portions of alkylolamides of the fatty-acid radicals occurring in hydrogenated castor oil, having an iodine number of 11 or less. They consist principally of the alkylolamides of hydroxy stearic acid, together with minor portions of glycerine. M. J. Kelley, to National Oil Products Co. Canadian Patent No. 434,739.

Benzene Hexachloride

The comparative toxicities of the gamma-isomer of benzene hexachloride, DDT, borax, and thiourea to larvae of the housefly, *Musca Domestica*, was determined in the laboratory by treating media consisting of crushed oats, yeast, sirup, and water with solutions containing various concentrations of the compounds. The concentrations in p.p.m. allowing transformation of 50 per cent of the larvae to adults were: benzene hexachloride 8; DDT 77, thiourea 81, and borax 924. E. R. McGovern and P. G. Piquett. *J. Econ. Entomol. 38*, 719.

DDT Against Black Flies

Tests made in Guatemala on larvae of *S. metallicum, S. ochraceum, S. callidum, S. mexicanum,* and *S. exiguum*, gave complete eradication for distances up to 10 kilometers in streams treated with DDT emulsion at 1:10 million parts of water. The stock emulsion used contained 20 per cent DDT, 20 per cent emulsifier (Triton X-100), and 60 per cent xylene. Trials indicated that turpentine might replace xylene, and soap berries the emulsifier in this emulsion. DDT powder suspended in water with a wetting agent gave kills of larvae almost as satisfactory as emulsions. G. B. Fairchild and E. A. Barreda. *J. Econ. Entomol. 38*, 695-9.

Insecticidal Preparation

An insecticidal preparation which is soluble in oil and miscible with water, consists of an insecticide derived from natural sources, such as pyrethrum extract, rotenone or nicotine, dissolved in a methyl, ethyl, propyl, or butyl mono ether of a glycol or polyglycol. An emulsifying agent such as sulfonated fatty alcohol or triethanolamine soap may be added. Stafford, Allen & Sons Ltd. and T. F. West. British Patent No. 560,694.

Aerosols or Sprays

In comparing sprays produced by a standard Peet-Grady atomizer, with aerosols produced using liquid "Freon," the aerosol is superior when sprayed directly on the flies. When the insects are not exposed immediately after the insecticide has been distributed, the aerosol is more effective after 20 minutes than the spray is after 5 minutes. The 10-minute knockdown effect was about 7 per cent greater with the spray. J. H. Fales and L. D. Goodhue. *Pests* 12, No. 9, 8-10.

New Range of Waxes

A new range of waxes, collectively known as Abril, are claimed to be superior to natural waxes in many respects. They are the product of research by British scientists and are intended for use in a wide range of applications, including floor and furniture polishes. The major portion of the Bridegend Royal Ordnance Factory has been allocated for production. The proprietors are The Abril Corporation Ltd., 25 Hanover Square, London W1. Production by the end of this year is expected to reach 1250 tons, and 10,000-15,000 tons by 1948.

Insecticide Patent

Insects and allied pests are controlled by the use of *alpha,-alpha, beta* trichloropropionitrile. B. C. Redmon, to Am. Cyanamid Co. Canadian Patent No. 433,762.

TRADE NEWS . . .

NAIDM Board to Meet

The board of governors of the National Association of Insecticide and Disinfectant Manufacturers will hold a regular board meeting at the Hotel Mayflower, Washington, D. C., September 24. The meeting will be a full-day session, ending with dinner in the Chinese Room of the Mayflower.

DDT Fatality Questioned

Reports blaming DDT for the death of Houseman M. Kille, Collingswood, N. J., are under question by Representative Walt Horan, Republican of Washington. At his request, the Philadelphia agency of the Food and Drug Administration has been instructed to make an inquiry. Mr. Kille died on August 25th and Joseph Myrtetus, Camden County, N. J. coroner, held that accidental inhalation of the fumes had caused death. Mr. Kille had sprayed his summer resort near Stroudsburg, Pa. with a DDT concentrate to rid it of spiders.

The best scientific evidence indicates that DDT is a safe insecticide in the forms commercially available. Dr. Israel Weinstein, New York City Health Commissioner, in commenting on the Kille case said there have been no deaths traceable to DDT in New York City, nor has the insecticide been found to be the cause of any reported case of non-fatal poisoning.

OPA Insecticide Order

The OPA has recently clarified its new amendment (No. 42) to SO 132, which was issued August 5. This amendment substituted in section 1 (e) a new paragraph covering the exemption of household insecticides, disinfectants, deodorants, rodenticides, etc., from OPA price controls. In amendment 42 the OPA specified exemption from price controls of such products "when branded and sold in packaged form." They now advise that this reference was added merely to distinguish household products from agricultural products which have not been exempted from price control, and is not intended as a limitation on the manner in which the products listed in the amendment can be packed. Household insecticides, disinfectants, etc., were first exempted from price control, May 15, 1946, by issuance of amendment 28 to SO-132.

NAIDM Exhibit at Chicago

The new educational exhibit of the National Association of Insecticide and Disinfectant Manufacturers had its first public showing at the products exposition held in connection with the National Institute of Government Purchasing in Chicago Aug. 19-21. Association literature was distributed at the booth, explaining the purposes and accomplishments of the NAIDM. Future showings will be as follows: American Hospital Association—Oct. 1, 2, 3, Philadelphia; National Safety Council—Oct. 7-11, Hotel Stevens, Chicago; American Public Health Association—Nov. 11-14, Cleveland.

A. W. Morrison of Socony-Vacuum Oil Co., chairman of the exhibit committee was in attendance at the booth throughout the entire show. Others who assisted in receiving visitors were David Lynch of John Powell & Co., Glen Buerki of West Disinfecting Co., J. A. Green of Standard Oil (Indiana), and N. J. Gothard and Tony Grady of Sinclair Refining Co.

Other exhibitors of sanitary and maintenance products at the Chicago meeting of the National Institute of Government Purchasing included Continental Car-Na-Var Corp., Brazil, Ind.; Walter G. Legge Co., New York; Turco Products, Inc., Los Angeles; U. S. Sanitary Specialties Corp., Chicago; Fuller Brush Co., Hartford, Conn.; Schroeder & Tremayne, Inc., St. Louis, and Jas. H. Rhodes Co., Chicago.

Extermital Co. Moves

Extermital Chemicals, Inc., Dayton, Ohio, specialists in termite service, announced the occupation, on Sept. 3d, of their own building located at 1026 Wayne Ave.

NAIDM booth at the products exposition conducted by the National Institute of Government Purchasing in Chicago, Aug. 19-21. The display device shown at the left of the photo accommodates a series of fourteen placards, only one of which is shown. The complete set gives attention to all of the various products of members of the NAIDM.

New Aerosol Insecticide

Recently announced by Virginia Smelting Co., West Norfolk, Va., a new aerosol insecticide "Lethalaire" is now available. The dispersing propellent is "Freon 12." The active ingredients are pyrethrum extract, DDT, methyl aromatic petroleum derivatives, and xylol. It is commercially handled in 5 and 30-pound cylinders with or without the applicator. A special automatic diffuser for permanent installation in rooms is also available.

Purdue Pest Control Course

Purdue University, Lafayette, Indiana, has announced that it will offer a four-year curriculum designed to provide a well-balanced college education and at the same time provide both technical and practical experience in pest control as well as business courses which should be of special value to pest control operators. In developing this new curriculum, which is the first four-year course especially designed for the pest control operator, the Purdue authorities have considered first of all a course of studies which would turn out well-educated men and women. Secondly, which will provide a technical and working knowledge of pest control, including estate plant pest control as well as household and structural pest control. In addition, business courses, such as business law, accounting, business writing and business interview have been added. If sufficient numbers enroll for this course, it is expected that special courses, not now available, will be provided. Those interested should write J. J. Davis, Department of Entomology. Professor Davis advises that he will appreciate suggestions for this new curriculum. A folder is available listing the subjects to be taught for the entire four-year program.

Weed & Pest Curb Movies

Two Kodachrome motion pictures on weed and pest control are being completed for the Sherwin-Williams Co., New York, "Goodbye Weeds," and "Doomsday for Pests." Both pictures will combine live action with animation, and microphotography. National distribution will be handled through Sherwin-Williams sales organizations and it is expected that the commercials will be seen by some four million people during the next year.

DDT Success in Newark

Commenting on the success which has attended the use of DDT during its first year of availability to the general public, Dr. Charles V. Craster, Newark, N. J., health officer, in a recent press interview credited DDT with a rather surprising drop noted in complaints of insect infestation in the Newark area recently.

A. I. F. A. Sept. Meeting

The thirteenth annual meeting of the Agricultural Insecticide and Fungicide Association was to be held at Spring Lake, N. J., on September 4-5. Sessions were to be held in the Essex and Sussex hotel.

Col. Pick Returns to Sales

Colonel Theodore J. Pick recently resumed his position as secretary and sales manager of Janitors Supply House, Inc., Baltimore. The Colonel spent four years with the Army in the transportation corps and was superintendent of the water division of a major port in the European theatre of operations, handling 6,500,000 tons of freight in three years. His fourth year of service was spent as director of operations of the New Orleans Port of Embarkation.

Philipp Bros. Relocate

Philipp Brothers Chemicals, Inc., have announced that they have moved their New York office from 70 Pine St. to new and larger quarters at 37 Wall St. The company has branch offices and warehouse stocks in Boston, Providence, Hartford, Philadelphia, and Baltimore.

New Building for Zonite

Foundation work has begun on a $300,000 addition to the New Brunswick, N. J., plant of Zonite Products Corp. The work will be done by Walter Kidde Constructors, Inc., New York. Building plans include a new cafeteria and kitchen, lavatories, locker rooms, showers and recreation space for employees. There will be a special lounge for women. Another portion of the building will provide expanded space for the advertising department and for shipping and small packaging. The building program also includes a 4-story addition to provide more room for manufacture and packaging. A portion of this addition will be used for a new first-aid room.

Building addition to Zonite plant at New Brunswick, N. J.

New Rest Room Deodorizer

A new preparation for the control of odors in rest rooms has been put on the market under the name of "Airkem Red Label Rest Room Refreshener." It is produced by Airkem Inc., New York. A special wall cabinet has been devised for rest room use of "Red Label." It is of rolled steel and white enamel, and is equipped with a locking device. The cap of the bottle is unscrewed and the wick is raised three inches. The product works twenty-four hours a day. The W. H. Wheeler Co., New York, distributors, have launched an advertising and educational campaign to bring this product to the attention of establishments who conduct rest rooms as part of their service to patrons. Airkem's "Red Label" will be supplied to service stations and other establishments maintaining public rest rooms through national Airkem distributors and through service station supply houses as well as oil company channels.

J. T. Baker New Plant

A new unit for the organic chemical division of the J. T. Baker Chemical Co. has just been erected at the home plant at Phillipsburg, N. J. The new building will be used for the manufacture of a new group of organic chemicals now in the pilot-plant stage. The new products will be in addition to DDT, 2,4-D, and CTAB also produced in Phillipsburg.

New Syntholeene Products

Three new products were announced in July by the Syntholeene Corporation, 64 Hamilton St., Paterson, N. J. "Nyleene" and "Woolene" are soapless liquid cleaners. The company states that "Nyleene" washes nylon, silk, rayon, and celanese in hosiery, underwear, lingerie, etc., without shrinkage or distortion and refinishes as it washes by depositing a protective film that remains on the fabric. "Woolene" is said to be a non-shrink, protective wash for all types of woolens. Packaged in tall, rectangular bottles for family resemblance, "Nyleene" and "Woolene" are packed 36 and 18 to the carton. The third product is "No Blaze," a fireproofing rinse requiring no boiling or rubbing. It is a crystalline powder which, when in solution,

is claimed to offer flameproofing for textile furnishings of the average household. "No Blaze" is packaged in red-and-white boxes, one dozen to the carton.

Advancements at Pennsalt

Frederick C. Abbott, formerly manager of the new products division, has been named assistant production manager in the manufacturing department of the Pennsylvania Salt Manufacturing Company, Philadelphia, it was recently announced. Mr. Abbott, a graduate in chemical engineering from the University of Arkansas, came to Pennsalt from the Phosphate Mining Company in 1943 and previously was connected with the Ozark Chemical Co. and the Texaco Salt Co. He was in the market research department of Pennsalt before becoming manager of the new products division. Replacing him is Hugh Richard Bishop, recently released as a lieutenant colonel in the air forces after four years of service. Mr. Bishop, a graduate of Lehigh University, joined Pennsalt in 1939. Martin E. Johnson has been transferred to the new products department, from the market research department which he joined in 1945. He was formerly with Rohm and Haas Co.

Naval Stores Report

In a quarterly report of the Naval Stores Research Division of the USDA, issued in mid-August, figures were given covering the production, distribution, consumption, and stocks of turpentine, rosin, and other naval stores on hand for the period April 1 to June 30, 1946.

U. S. carryover stocks of rosin at the end of June, 1946, amounted to 239,887 drums (520 lbs. net) of gum rosin and 124,292 drums of wood rosin. This represented an increase in the stock of gum rosin of 2,383 drums and a decrease of 26,886 drums in the case of wood rosin during the three-month period. Stocks were slightly lower than in the same period last year. Apparent U. S. consumption was reported at 140,632 drums of gum rosin and 209,138 drums of wood rosin for the 2nd quarter, a drop off to about 68% of last year's consumption in the case of gum and an increase of about 43% in the case of wood rosin.

Production of gum rosin for the three-month period was stated to be 206,496 drums, and of wood rosin output 210,194 drums. The production of gum rosin showed a very slight increase over last year's figure; in the case of wood rosin, an increase of 20% was noted. The figures show that paper and paper sizing manufacturers were the largest users of rosins, using 24.5% of the total industrial consumption reported in the 1946 second quarter. The chemicals and pharmaceutical industry took 23.8%, ester gums and synthetic rosins took about 21%; soaps took about 12%; paint, varnish and lacquer took about 8.7%.

Duraglas Research Bldg.

Plans for a new container research and development location were announced August 30th by Owens-Illinois Glass Co., Toledo, Ohio. A building in downtown Toledo purchased as surplus property from War Assets Admin. will be rehabilitated and renamed the "Duraglas Research Building." The company will use the building to consolidate and better coordinate several research activities now carried out in separate locations.

John W. Wizeman Dies

John William Wizeman, 51, chief of the inorganic branch, Chemical Division, Civilian Production Administration, died August 15th at his home in Arlington, Va.

Leaving his export business, Mr. Wizeman entered Government service in 1924, when he joined the Bureau of Foreign and Domestic Commerce. At the start of the war emergency in April, 1941, he was transferred to the Office of Production Management to direct that agency's inorganic chemicals work. He continued at that job after the OPM was succeeded by the War Production Board and more recently by the Civilian Production Administration.

During the war, he was credited with a large part of the responsibility for the Chemical Warfare Service smokes, explosives, and chemicals program as well as the fertilizer and insecticide supply (including aerosol and DDT) by surveying production facilities and adding to them when necessary, and by keeping in proper balance the allocations of raw materials for the military and civilians. While at the Bureau of Foreign and Domestic Commerce, he originated the idea of a Market Research Group and served as its guide.

Market DDT Screen

DDT Lite, Inc., 3757 Wilshire Blvd., Los Angeles, has placed on the market a screen coated with DDT, which encloses a regular electric light bulb. Insects brushing against the wire will die, according to promotional literature, which also announces plans for developing a snap-on screen to fit bulbs already installed.

New Hand Cleaner

Chemists of R. M. Hollingshead Corp., Camden, N. J., have developed a new product described as a fortified cocoanut oil hand cleaner. It will be known as "Whiz Hy-Foam Cleaner." In addition to containing a 75 per cent coconut oil base, the new cleaner is said to be fortified with wartime developed chemicals responsible for producing abundant lather, and softening hard water. The new cleaner is claimed to keep dispensers open and wash basins and drains clean by not precipitating, or congealing or forming sediment. The product will be available in straight (ready to use) and concentrated form.

Lehn & Fink N. Y. Office

A large area in the Tishman building under construction on Park Ave., New York, has been leased by the Lehn & Fink Products Corporation and its subsidiary, Dorothy Gray, Ltd. Lehn & Fink will occupy the entire twelfth and thirteenth floors, comprising 30,000 square feet, while Dorothy Gray, Ltd., will occupy a retail store next to the Park Ave. entrance of the building. This store will be connected by private elevator to a beauty salon, which will occupy 5,000 square feet on the second floor. In addition to the "Dorothy Gray" products, Lehn & Fink manufacture "Hinds Honey and Almond Cream," "Lysol" disinfectant, "Pebeco" tooth paste and powder and other cosmetic and pharmaceutical products.

NPCA Meeting Oct. 28-30

The fourteenth annual convention of the National Pest Control Association, Inc., will be held in New Orleans October 28-29-30, 1946. The attendance is expected to exceed 600. Details of the program have not been issued as yet.

Johnson To Push Glo-Coat

"Glo-Coat," a big seller in the floor polish field, will be heavily promoted in September by S. C. Johnson & Son, Inc., Racine, Wisc. The "Glo-Coat" push is the first in a series of intensive nationwide programs set for the fall by Johnson's. Each will concentrate on one Johnson product and will run one month. Company representatives are now organizing tie-in store promotions, employing special merchandising aids and a number of point-of-sale materials developed to help retailers in this September promotion.

Hercules Advances Four

Four members of the research staff of Hercules Powder Company's Paper Makers Chemical Department, Wilmington, have been assigned new posts, the company announced recently. Dr. William P. Campbell, leader of the PMC research group at the experiment station near Wilmington, is appointed director of development of the PMC department with headquarters in the Wilmington home office. Dr. W. Donald Thompson, Jr., formerly assistant group leader, is named acting PMC group leader at the experiment station. Research chemists Dr. James W. Davis and Dr. Stearns Putnam are assistant group leaders of the paper makers chemical group at the experiment station. Dr. Putnam formerly was engaged in general research work, while Dr. Davis has been engaged in paper chemicals research.

Coast Plant for Montrose

Montrose Chemical Co., New York, recently announced plans for expansion on the West Coast. A new affiliate will be known as Montrose Chemical Corporation of California, with its plant at Los Angeles. Its entire capacity will be devoted to the manufacture of technical DDT for use by manufacturers of agricultural, livestock, and household insecticides. P. Rothberg, president of Montrose, has been elected president of the California affiliate, and his associate, S. Rotrosen, is secretary and treasurer.

Fritzsche Anniversary

Fritzsche Brothers, Inc., New York, essential oils and aromatic chemicals, celebrated their 75th anniversary in August. A brief history of the company, in booklet form, is now being distributed to the trade. It traces the growth of Fritzsche Brothers Co. from its organization in 1871 when it was associated with Schimmel & Co., Leipzig, to its present place in the essential oils industry with offices and laboratories at the New York Port of Authority Commerce Building, plants at Clifton, N. J. and Seillans, France, and branches in many cities as well as in Canada and Mexico.

The company has at various times established fellowships and made important contributions to the research work done in phytochemistry, pharmacy, and essential oil chemistry. Fellowships have been maintained at University of Wisconsin, Columbia University, and Michigan State College.

F. H. Leonhardt

J. H. Montgomery

In commemoration of its seventy-fifth anniversary, the company is establishing an annual award of $500 and a gold medal for scientific achievement in the field of essential oils and aromatic chemical chemistry.

Chestnut Pacific Head

Charles O. Chestnut became general manager of the newly-organized Pacific division of Wyandotte Chemicals Corp., Wyandotte, Mich., August first. Manufacturing and distribution activities in the Pacific states of the products of both the J. B. Ford and Michigan Alkali divisions of Wyandotte, and of Natural Soda Products Co., will now be directed from the new Pacific division office, 50214 Central Tower Building, San Francisco 3. The Pacific division will also solicit business on the new Wyandotte organic specialties and fine chemicals. Field sales activities of the former J. B. Ford Division (specialized cleaning compounds) will continue to be supervised by P. S. Spencer.

Inland Steel Sales Heads

Inland Steel Container Company, Chicago, subsidiary of the Inland Steel Company announced in August the appointment of Gordon D. Zuck as general manager of sales and J. Doyle Moore as assistant general manager of sales. The company manufactures a complete line of steel drums and pails for packaging chemical petroleum, paint and food products.

Mr. Zuck joined the company in 1932 as advertising and sales promotion manager and previous to this new appointment held the post of assistant general manager of sales. Mr. Moore has been with the company since 1929. During this time he has been active in sales work and as assistant secretary-treasurer.

PMMI Sept. Meeting

Packaging Machinery Manufacturers Institute has announced that its fourteenth annual meeting is being held from September 29th to October 1st at the Shawnee Country Club, Shawnee-on-Delaware, Pa. George W. von Hofe, president, New Jersey Machine Corp., Hoboken, is in charge of program and arrangements, assisted by John P. Corley, vice president, Miller Wrapping and Sealing Machine Co., Chicago. The sports committee is headed by Oscar W. Wikstrom, president, U. S. Automatic Box Machinery Co., Boston.

Papers On Rosin At ACS

At the September meeting of the American Chemical Society in Chicago, two papers will be presented by members of the research staff of the Hercules Powder Co., Wilmington. As part of the division of rubber chemistry program, Dr. John W. Hays will present a paper on "Disproportionated Rosin Soap (Dresinate-731) as the Emulsifier in the GR-S Polymerization." Dr. George C. Harris of the experiment station will talk on "The Determination of the Structures of Resin Acids" before the division of organic chemistry.

New Maine Toiletries Tax

The Governor of Maine has recently signed a bill passed by the legislature calling for a 5% tax on perfumes, cosmetics, and other toilet preparations. A provision of the bill makes it applicable to the sale of such products to barber shops, beauty parlors or similar establishments, where the articles are not for resale, but are used in the operation of the establishment. The bill must be approved by a referendum of voters at the general election in September before becoming effective.

Firmenich Souvenir Book

In commemoration of the fiftieth anniversary of the founding of Chuit, Naef & Cie, Geneva, Switzerland, (to which Firmenich & Cie., Geneva, is the successor), the company has recently published a souvenir book printed in Switzerland. The 150-page book, profusely illustrated with indoor and outdoor pictures and drawings of the company's plants and laboratories and their operation, reviews the history and progress of the company in the synthetic aromatic chemical field. Printed in English, the book includes an interesting article by L. Ruzicka, professor of the Swiss Federal Institute of Technology, on "The Contribution of the Chemistry of Perfumes to the Development of Organic Chemistry." Roger Firmenich presents a review of aromatics research entitled, "From the Synthesis of Vanilline to that of Alpha-Civetone." Max Stoll, director of research, writes on "Chemical Research on Synthetic Perfumes." Articles are offered about the administrative structure, staff, and history of the company. The book is beautifully illustrated with rotogravure prints and is an artistic work of the highest quality. Rupert C. Watson is the commercial director of the firm's New York branch, Firmenich & Co., 135 Fifth Ave.

SOAPS AT TOILETRIES SHOW

(*From Page 59*)

and other kindred items. John J. Tracey, who recently became associated with the company, was in charge of the Lanchere exhibit. Mr. Tracey, who was for thirty years soap buyer for Marshall Field & Co., launched his own business in 1936, but war conditions forced him out, he said, and he is now associated with Lanchere.

The House For Men, Chicago, announced a new liquid deodorant for men in its "His" line of masculine toiletries, to be released this month, and a new set of four items for the Christmas trade. Availability of glass and plastic containers in ivory color has enabled the company to resume distribution of its full line of 25 items, a spokesman said.

Something new in packaging, a glass container with the label fired into the glass, was shown by Tussy Cosmetiques, Inc. Produced by what is known as the "metagraph" process, this insures a label which cannot be destroyed or soiled by wet hands. Tussy displayed a new "Ginger Spice" soap, supplied in sets of three cakes to a box and a new "Youngtime" series for teen age soap users, shown for the first time at this show. Also announced for October release was a new Tussy cream shampoo.

Tre Jur had a new Christmas bath set for men, including a lavender cologne and a bath soap with shower cord attached, which is being promoted by national advertising.

Solon Palmer, one of the oldest soap houses in the United States, now managed by the fourth generation of Palmers, displayed its long established line of hard milled French soaps, each cake being hand wrapped and waxed.

Curley Co., Philadelphia, had a new liquid brushless shave cream in its Norwood toiletries line and several attractive gift sets for men. Maurice Bergman, in charge of the exhibit, also demonstrated an all-purpose pine oil soap, "Pine Oleen," applied like a rug shampoo for removing grease and dirt from walls and painted surfaces

Alvin H. Weber, Chicago representative of Jean Vivaudou Co., New York, "Orloff" perfumes, had two new soap bars for men and two for women, also a set of three cakes of "Baby Breath" soap for infant use. This product, Mr. Weber said, has been developed on the basis of answers to a questionnaire sent to 2,000 physicians, but is not yet ready for mass production.

B. L. Marks, vice-president of Lightfoot Schultz Co., New York, was on hand to assist M. B. Houck, midwest sales supervisor, and James Salamon, Chicago, salesman in presenting their "Royal Oak" men's line and "Avaderma" formula soap for dry skins, formerly called "Ariderma." Also shown by Lightfoot were various standard sets and gift soaps in novelty design, whose production, Mr. Marks said, has lately been resumed in fair quantities.

Luxor, Ltd., affiliate of Armour & Co., has completely redesigned its toilet preparations, on the basis of color and fragrance, W. D. McCoy, field representative, stated at their display. Women, he explained, are becoming more and more color conscious and Luxor is preparing to cater to this trend by providing its soaps and accessory lines in pastel shades, which will match any woman's ideas for bath room color schemes. There is, he also observed, a definite trend to bath room luxury items.

"Men's toiletries are booming," was the remark made by many exhibitors to explain their emphasis on preparations for men. This trend is growing, they said, and many manufacturers are planning extensive promotional efforts to capitalize on the masculine interest in toilet goods of all types. As an instance, Bernard Bogue of the Alfred D. McKelvy Co. said his company will spend nearly $400,000 on advertising scheduled for the last six months of this year.

—— ♦ ——

Insecticide

An insecticide containing as its active ingredient a halogen-substituted acrylonitrile. H. S. Davis, to Am. Cyanamid Co. Canadian Patent No. 433,235.

ALUMINUM CLEANERS

(*From Page 47*)

into newer fields will certainly call for other specialized cleaning and polishing materials.

Bibliography

(1) Small, C. T.: Chem. Ind. 44:648, 1941.

(2) Young, C. B. F.: Product Eng. 10:57, Feb. 1939.

(3) Anon.: Metals & Alloys, 12:205, 1940.

(4) Akers, J. R. & Mears, R. B.: Soap & Sanit. Chem. 17:25, April 1941.

(5) Anon.: Amer. Machinist 76:973, 1932; J. Inst. Metals 53:52, 1933.

(6) Harris, J. C.: Aluminum & Magnesium 1:28, April 1945.

(7) Leffingwell, G. & Lesser, M. A.: Aluminum & Magnesium 1:15, Sept. 1945.

(8) Martin, J. H.: Manuf. Chem., Nov. 1938, p. 339.

(9) Anon.: "Aluminum in the Chemical Industry," Pittsburgh, Aluminum Co. America, 1939, pp. 16-7, 28-30.

(10) Thomas, J. F. J.: Canadian J. Research 19B:153, 1941.

(11) Bjorn, E. A.: Fr. Pat. 723,172, 1931.

(12) Townsend, C. D.: Materials & Methods 22:1411, 1945.

(13) Mohr, W. & Wullhorst: Molkerie-Ztg. 50:2490, 1936.

(14) Stites, M.: Ind. Finishing 19: No. 4, 38, 1943.

(15) Chem. Fabrik Budenheim A.-G.: Brit. Pats. 390,250 and 390,751, 1933.

(16) Schwartz, C.: U. S. Pats. 2,303,-397-2,303,400, 1942.

(17) Rutledge, C., Jr.: Canadian Pat. 411,280, 1943.

(18) Hart, J. F.: U. S. Pat. 2,381,124, 1945.

(19) Cleveland, T. K.: Monthly Rev. Am. Electroplaters' Soc. 27:432, 1940.

(20) Durgin, C. B.: U. S. Pat. 2,037,586, 1936.

(21) Brown, R. H. and Mears, R. B.: U. S. Pat. 2,316,219, 1943.

(22) Churchill, H. V.: U. S. Pat. 1,890,-214, 1932.

(23) Tyler, C. A.: Soap & Sanit. Chem. 15:103, Oct. 1939.

(24) Widmer, A. J.: U. S. Pat. 2,188,-140, 1940.

(25) Bennett, H.: "Chemical Formulary," Vol. IV, New York, Chem. Publ. Co., 1939, pp. 411, 509.

(26) Gangloff, W. C.: U. S. Pat. 1,870,311, 1932.

(27) Crowley, C. A.: "Money Making Formulas," Chicago, Pop. Mech. Press, 1939, p. 112.

(28) Brookes, G. I.: Brit. Pat. 483,928, 1938.

(29) Bennett, H.: "Chemical Formulary," Vol. III, New York, Chem. Publ. Co., 1936, p. 284.

(30) Belanger, E. J.: "Drug & Specialty Formulas," New York, Chem. Publ. Co., 1941, p. 8.

(31) Scheib, R. C.: Canadian Pat. 416,965, 1943.

(32) Hart, J. F.: U. S. Pat. 2,381,124, 1945.

(33) Landauer, M. and Lochmuller, K.: Brit. Pat. 478, 209, 1938.

INDEX TO ADVERTISERS

*For further details see announcement in 1946 SOAP BLUE BOOK

Every effort is made to keep this index free of errors, but no responsibility is assumed for any omissions.

Tale Ends

THE college boy in specs shown below is none other than John Powell, president of John Powell & Co., New York, this photo recently

appearing in the OPD with caption, "Firm marks 23 years." But, gentle reader, do not let this likeness of a callow youth fool you. If the firm is 23 years old, so is the picture! Any resemblance to J. Powell of today is strictly accidental.

* * *

And speaking of anniversaries, our contemporary, the "Oil, Paint & Drug Reporter," known more familiarly to the boys in the chemical publishing racket as the OPD, is 75 years old this year, having been founded in 1871.

* * *

Every mention of a soap famine brings satisfied grins to the faces of those bold souls who have busted into the market with a new soapless detergent or cleanser.

* * *

John Culver Leppart of Southern Alkali Corp., Corpus Christi, Texas,—just plain "Black Jack" Leppart to his former associates in N. Y. and Wash., D. C.—took time out last week to write his annual insulting letter to our editor. He objected to our shaving soap edit in the July issue. Imagine the nerve!